The Builder.

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Architectural Association Excursion.—Sketches on the Line of Route, by Mr. S. K. Greenslade, A.R.I.B.A. :—
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The Reliquary, North Transept, Gloucester Cathedral ..... *Single-Page Ink-Photo.*
Tewkesbury Abbey from the South-East ..... *Single-Page Ink-Photo.*
Entrance Front from Churchyard, Chastleton ..... *Single-Page Ink-Photo.*
St. John's Church, Gloucester; House, Charlton Abbots; The Manor Farm, Southam, and Part of Entrance Front and Lodge, Stanway ..... *Double-Page Ink-Photo.*
The Jacobite House and Church, Winchcombe; St. Nicholas, Westgate, Gloucester; The Tower at the Cross, Gloucester; and a House, Gloucester ..... *Double-Page Ink-Photo.*
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The Paris Sanitary Exhibition, 1895.

THE law which has recently been passed necessitates that the whole of the house drainage of Paris shall be rearranged, within the next three years, to bring it into conformity with the system which exists in England, and it has naturally called a great deal of attention to sanitary matters. It is not, therefore, surprising that an International Exhibition of Sanitary Appliances should have been inaugurated as a preliminary step in this desirable direction. The exhibition has been opened since the first day of June in the Palais des Arts Libéraux in the Champ de Mars, one of the buildings erected for the last Paris Exhibition. Owing to its being incomplete in some of its details, we have refrained from reporting upon it until now. The exhibition will remain open until September 15. Engineers, architects, and manufacturers have been specially invited to take part in the exhibition, and an appeal has been addressed to Englishmen interested in sanitation, though the reply, represented by the number of English exhibitors, cannot be called encouraging. There are ten classes in the exhibition, representing the hygiene of dwelling-houses, municipal hygiene, prevention of infections, demography and sanitary statistics, sanitary science, hygiene applied to infancy, industrial and professional sanitation, alimentary hygiene, hygienic clothing and physical exercises.

Amongst the English Committee of Patrons appear the names of Sir Douglas Galton, Sir Robert Rawlinson, Professor W. H. Corfield, Sir Henry W. Acland, Sir Philip Magnus; Messrs. Shirley J. Murphy, and A. R. Binnie, of the County Council; and Messrs. J. Wright Clarke and Reynolds.

It is a matter of some regret that the headings, or subdivisions, which are quoted above, should not have governed the arrangement of the exhibits. These, however, seem to have been arranged in a somewhat haphazard manner. Consecutive interest and means of comparison are absent, and some of the interest is wanting which would otherwise have been present. The exhibition may be considered an interesting one, though, from an English point of view, it is a matter of some surprise that so few representative firms have contributed to it.

M. H. Mouret, engineer, of Paris, exhibits some charming specimens of opaline laminée, or porcelain, invented by him, in the shape of bricks and slabs for wall-linings; this material, which is of a very even colour and high glaze, has been apparently extensively used in lavatory tops, table and counter tops, and other similar purposes, for which it is admirably suited. The decorative qualities of this material are equally good, and some of the painted plaques are charming. It claims to be especially useful in bath-rooms lavatories, water-closets, operation-rooms, laundries, kitchens, milk, butchers', and tripe shops, and the long list of hospitals, railway-stations, and other buildings in which it has been used, shows that it is a material which merits the popularity which it enjoys. In an adjoining stand, Messrs. Piet & Co., of Paris, exhibit many examples of lavatory and water-closet apparatus, in which the opaline laminée above referred to is utilised in an effective way. Their exhibits of needle and shower-baths are also interesting. Their water-closet pans in earthenware, some with vertical sides and a nozzle for the water discharge at the back, which has no rim to distribute its discharge, are certainly new to us. The use of a polished brass supply-pipe from the water waste-preventer to the pan is an improvement which might be more usually adopted. Messrs. Piet & Co.'s fittings for large and small laundries are also excellent. The Compagnie de Salubrité de Levallois-Perret, Rue Victor Hugo, exhibits its apparatus for treating draining adopted by the town of Levallois-Perret, which partly consists of removing obstructions before putting the drainage into a pipe of small diameter. There are some good specimens of stoves for disinfection on an adjoining stand, exhibited by M. F. Dehaitre, of Paris; these seem to have been used in well-known institutions. The linen is enclosed in a galvanised wire cage, which runs into a cylinder with heavy iron doors at each end, a system of valves then completes the work, the position of the cylinder being at the division-wall between the two rooms, so that the disinfected clothes are removed from the cylinder in a different room free from infection. The exhibition contains many photographs of actual disinfecting chambers in use by municipalities around Paris, which clearly show these machines in use. The stall of M. J. Croppi, of Paris, contains some good specimens of sanitary apparatus, consisting of earthenware lavatory and water-closet basins of English origin, of which the fittings have been procured in Paris. Most noticeable amongst these is a very neat appliance in the form of an attachment to the supply-pipe to the water closet-pan; a small bottle of creoline is so placed that the rush of water of each pull releases a quantity of disinfectant to accompany each discharge. M. Croppi also exhibits a lifting mahogany seat with an ingenious double-hinged lid, which provides a smaller seat suitable for a child's dimensions. M. H. de Montricher is one of several engineers who has exhibited plans of projected urban and other drainage. The particulars of filter installations and water supply to public and private buildings exhibited by M. G. Carré are very complete, and demonstrate the various applications of his system, such as placing a filter at the side of a sink, a filter in a kitchen or office, a large filter placed in the basement with the water taken direct; another alternative is a filter placed in the basement with the water in separate services for drinking and washing purposes; a filter installation in basement with elevating reservoir assuring a pressure of filtered water on upper floors. Another plan shows a filter or reservoir, where the pressure is nil or insufficient, the filtered water being forced to a higher level by a pump. Some illustrations are also shown of an installation made at l'Hôpital International, Peau. Specimens of lavatory basins have been exhibited by Messrs. Jones & Campbell of Larbert. At

an adjoining stand the Nadien Compound Syphon Company, of Harrow, is represented. This syphon is a series of six lead pipes of graduated sizes and lengths, bent to form syphons, the ends of the six pipes being brought into one discharge pipe; as a consequence these six pipes acting at the same moment are likely to give a very powerful discharge, useful in all kinds of cisterns, but especially so for urinals; though an absence of a sufficient water supply prevented us applying a practical test at the time of our inspection. Messrs. Claughton Bros., of Bramley, near Leeds, exhibit some good specimens of lead pipes, traps, and other plumbers' fittings, of sound workmanship and material. M. Victor François, of Paris, shows a button arrangement for emptying a flushing cistern attached to a water-closet, instead of a cumbersome pull or plug. The action of the syphon is induced by pressing a button, which immediately liberates the air contained in the bell covering the syphon in the flushing-cistern, and induces the action of the syphon. This arrangement appears to be a good one, and reduces the exertion to a minimum. The iron and lead traps of M. François are also good of their kind. The Patent Gully Company, of Nottingham, also show their road-gully, with its double trap and means of cleaning same.

M. Henry Coppin, of the Rue St. Lazare, also exhibits his system of fans, or bellows, applied to forges. This system could be admirably adapted to a smoke-testing apparatus for drains. Cremation is represented in the Exhibition by the Société de Crémation, who send an excellent collection of photographs of their crematorium and columbarium, and, with a view to accentuating their usefulness, particulars are given of the putrefaction of bodies in different stages. M. G. Guyon, architect, submits the designs for a group of workmen's dwellings constructed in 1892-93. MM. Cauthey, Hausmann, & Co., of Paris, have on view some models of an arrangement for ventilating rooms by means of double sheets of glass and a space between to give an upward tendency to the inlet current. Messrs. Howatson & Co., of Neuilly, have on view particulars of the system of purification and filtration of drainage water which has been adopted in a large number of English towns.

The goods on view of the Société des Produits Céramiques et Réfractaires de Boulogne-sur-Mer are of excellent quality, and are mostly water-closets and glazed sinks of good material. An innovation, in the shape of a lifting seat to a pedestal water-closet, is shown by omitting the front portion, which is most liable to be soiled, and is practically useless. Amongst the few English firms who are represented in this exhibition, Messrs. Oates & Green, of Halifax, are to be found with a show of large-sized drain-pipes, glazed sinks, and other materials for which they are justly noted. The well-known firms which comprise the Leeds Fireclay Company are represented by a good show of porcelain baths, puro and Titan closets, porcelain sinks and lavatories, glazed bricks, Hall's hanging tiles, Gregory's locking tiles, and Shepwood's bricks. As such well-known firms as Messrs. Cliff & Sons, Brooke & Sons, the Burmantoft Company, Ingham & Sons, and the Wortley Fireclay Company are incorporated in the above company, it is needless to say that the goods exhibited are of high quality. Portable buildings constructed with a wooden frame and two layers of canvas are shown by the Société des Constructions Hygieniques. These are suitable for hot countries, and are ventilated in the roof. The Société des Crèches of Paris supply interesting particulars of their work and their buildings, with photographs and plans. Their work appears to be growing in Paris.

Ventilating tubes, with draft induced by water-jet, are exhibited by M. L. Bessiere; these are almost identical with the Æolus Waterspray Ventilator, which is fairly familiar to all. The amount of water used appears to be the obstacle to general adoption, but this may be rectified by the more general adoption of water-meters. An interesting specimen of English plumber's work comes from the Shoreditch Municipal Technical School; it is a simple arrangement of soil and ventilating pipes with trap for water-closet, and was executed by Messrs. C. H. Quelch and A. W. Walter, registered plumbers; we are glad to notice it. Another interesting exhibit is provided by the Union des Femmes de France, which has shown a tent fully equipped with all medical necessaries for supplying aid to the wounded on the field of battle.

We are obliged to own to a feeling of disappointment in the exhibition as an international one, especially as regards sanitary fittings in which we do not consider that the French can be compared to our best manufacturers. Many of the latter are conspicuous by their absence, and all sections of the exhibition are not well represented by exhibitors. We have, however, been much struck by the particulars supplied by many French municipalities as to their means of carrying out their drainage, water-supply and other duties, and foremost amongst these is the exhibit of the Ville de Paris, showing by means of models, plans, and illustrations, the course and development of their drainage, the origin and course of the Parisian water-supply, the means adopted for veterinary sanitation, disinfection and preservation of bodies in the Morgue, and, last, but not least, the cleaning and watering of their streets, in which London is very far behind Paris in every respect.

A NEW GRANITE.

THE granites of Newry, in Ireland, are well-known in the market. Their pleasing blue-grey tints and fine grain have placed them high in the estimation of large granite users, especially for ashlar and polished work. A new variety of the stone has recently been put on the market which fully sustains the excellent character generally borne by the Newry stones. It is known as "Altnaveigh dark granite," and may be briefly described as follows:—The colour of the stone in the rough is dark grey; when fine-axed it becomes lighter in tint, as do all highly crystalline grey building stones. On being polished it assumes a deep blue tint, and bears a close resemblance to certain Aberdeen granites, especially one from Cairngall, near Peterhead. It is not unlike the Dalbeattie grey; but is much darker than either of the materials mentioned. Compared with other Newry granites the peculiar spotted appearance (imparted to the stone by the felspar having a tendency to become porphyritic), so characteristic of the Bessbrook varieties, is just noticeable in the Altnaveigh stone, but the small white specks in the latter are more numerous. In thin transparent sections under the microscope the rock is seen to be thoroughly crystalline; there is no matrix, therefore, and the strength of the stone lies in the interpenetration of each other by the mineral constituents, and the cohesion of these latter to one another. The principal minerals present are quartz, plagioclase felspar and biotite mica. The quartz exists in a granulated condition, filling in the irregularities left by the other minerals and locking the whole together. The plagioclase felspar which, in the majority of granites used for building purposes, is twinned, thus presenting many points of weakness, is clear and free from striations in the Irish stone under consideration, only the smaller crystals exhibiting that structure. A very peculiar and distinguishing feature in the stone is the zonal structure taken on by the larger felspars, which reminds us more of American than British granites. The mica is not very abundant; it occurs as brown, irregular crystals. Speaking generally, the micro-examination of the Altnaveigh stone shows it to be of a durable character, and the only unfavourable point in it is the presence of iron pyrite, which is apt to become weathered, producing brown stains and patches. There is not much of this, however, in the rock. The freshness of the felspar is a good omen; in most granites that mineral is much decomposed, and presents a hazy appearance. The comparative absence of mica is also favourable from the polishing point of view; it is next to impossible to obtain a good polish on that mineral, and where it exists in abundance the surface of the polished stone is usually pitted. The specific gravity of this stone is 2·71, which is rather high, the majority of granites not surpassing 2·66. This is no doubt due to the basic character of the felspar and the presence of iron pyrites. This quality renders it fit for marine works, for which stones of high specific gravity are especially suitable. As a road-metal the Altnaveigh stone could not be recommended, primarily because of the granulated condition of the quartz and its brittleness. For paving stones and kerbs it would doubtless do very well. The material is practically non-absorbent; samples we placed in water for fourteen days did not turn the scale at more than half a grain, which might well be due to adherent moisture. On the whole, we are favourably impressed with this material, which, we understand, has been used to some extent locally, though from the circumstance of its not having been hitherto introduced to the market in any large quantity, it may fairly be regarded as a new granite.

NOTES.

THE daily press gave currency this week to a report that the Duke of York's Column in Waterloo-place is in a dangerous condition, that the newel stairs have partially collapsed, and that the joints of the stonework are opening. We have authority for stating that there is no truth whatever in these statements, but a few remarks about the column may be of interest just now. The column, in memory of Frederick, Duke of York and Albany, who died on January 5, 1827, was erected in 1830-3, on the site of the southern portion of Carlton House—originally built, of red brick, for Henry Boyle, Lord Carlton, on a piece of ground leased to him by Queen Anne in 1709 and bequeathed by him to his nephew, Lord Burlington, the amateur architect, and enlarged by Henry Holland for the Prince of Wales in 1783-4. This column, for which every soldier of all ranks contributed a day's pay, or about 25,000*l.* in all, was designed, after the Tuscan style, by B. Wyatt, Nowell being master-mason. The shaft, its surface fine-axed, is of red Peterhead granite; the lower pedestal is grey Aberdeenshire granite. Westmacott's bronze statue of the Duke in his robes of the Order of the Garter was raised on April 8, 1834; it weighs 7 tons 7 cwt., and is 13 ft. 6 in. high. The total height of the column is 123 ft. 6 in., its lower diameter is 11 ft. 7 in., and the upper diameter is 10 ft. 2 in. The column is a specimen of a style of monument which is an æsthetic folly, and of which we hope no more will be erected; but as a historical London landmark it should be preserved and kept in repair.

THE annual Report of the Works Committee of the London School Board shows plainly the great strides which sanitation is making in the metropolis. There is one observation in the Report which has a considerable amount of interest—namely, that better sanitation is required in the schools of the Board, which are used for only a few hours of the day, than is called for in private houses where people live and sleep. The reason is obvious: the schools are managed by a public body, incorporated for a special purpose, and this body is directly under Government supervision. If it were possible to place private houses also under

supervision, there can be no question that the health of the community would be greatly benefited. But we must be thankful that it is clear that the School Board feels obliged to be careful in this matter; the tone of the Report seems to be that of persons who consider first-rate sanitation rather a grievance than otherwise. Apart from this point it is noticeable how large is the amount of constructive work which is given out annually by the School Board. During the last year nine additional schools were opened and twenty-eight enlargements made. The loans sanctioned by the Education Department for the sites and buildings of the former amounted to 170,417*l.*: a large part of this sum has been distributed in wages among the builders, plasterers, and other artisans of London.

THE proposed destruction of the Falls of Foyers has led to further correspondence on the subject in the *Times* since we last alluded to it. One correspondent last Saturday, expressing himself as glad to head the movement "against this act of barbarism," offered to subscribe 100*l.* in aid of any well-constituted organisation for the purpose. It is to be hoped that other assistance will be forthcoming, and that something may be done, before it is too late, to put a stop to a proceeding which will not only be "an act of barbarism" in itself and in its immediate results, but will probably, if allowed, be the precursor of the similar destruction of almost every waterfall in England and Scotland. The spirit in which this kind of enterprise is regarded by engineers is charmingly represented in a letter in a previous number of the *Times* from a "M.Inst.C.E." who had been visiting the site, apparently at the request of the trading company concerned, and who maintained that no real harm was to be done to the Falls, as the company could shut off the water from their proposed factory and turn it through the falls again at any moment, and might even consent to do this at a fixed charge. The idea that there is no difference between an undisturbed natural waterfall and a waterfall which can be turned on as a "show" at so much a head, indicates at all events the utter hopelessness of any appeal to the engineering mind on such a subject.

OF the many competitions for designs of monuments we are constantly hearing of from Germany, one of the most important has been lately decided in connexion with the National Memorial to the ex-Chancellor Bismarck. This monument, which has been voluntarily subscribed for in a most enthusiastic way throughout the country, is to consist of a statue in front of the new Houses of Parliament at Berlin. Unlimited funds were at the disposal of the committee in charge of the matter, and it has been the chief ambition of this body to obtain some design that not only accords with the importance of the statesman, but also illustrates the popularity of the memorial. No less than 80,000 marks, or £4,000, were offered in premiums to ensure the participation of the leading German artists in the competition opened for the design, but unfortunately, the result has only shown that the sculptors of the "Fatherland," as a body, cannot do justice to any really important subject, and that it would perhaps even have been better to have asked for an architectural monument to Bismarck on some other site. Of the ninety-four candidates who sent in designs, the following eight have been awarded first premiums of 250*l.* each:—Herr Robert Baerwald (architect, Herr Otto Schmalz), Messrs. L. and E. Cauer (architect, Herr Grenander), Herr Hilgers (architect, Herr Bruno Schmitz), Herr Lessing (Herr H. Jassoy, architect), and Messrs. Ruemann, Schaper, Schneider, and Siemering. Ten premiums of 100*l.* and ten premiums of 50*l.* each were awarded for the designs next in order of merit, and 500*l.* given in *honoraria* where much labour had been incurred. It has not yet been decided if there will be a further limited competition, or if one of the sculptors awarded a first premium will receive the commission, with instructions to modify his design. It appears that the premiated designs have mostly been prepared in collaboration with architects for the design of the pedestal and surroundings.

IN no part of the world do matters relating to water supply receive greater attention, both on the part of scientists and of the public, than in Queensland. This is not to be wondered at when we consider that a large portion of the country owes its colonisation to the successful treatment of water supply schemes. The progress of this branch of engineering, and its dependence in the first place on the careful working out of the geology of the colony by the officers of the Queensland Geological Survey, forms the subject of an interesting report by the Government Geologist, Mr. R. L. Jack, which has recently arrived in England. He remarks that the bulk of the rain which falls in Queensland is intercepted by the belt of elevated land near the east coast. The country to the west does not receive, on an average, more than from a half to a third of the amount of rain which falls in the eastern coastal districts. In the western interior, in the intervals between rains, the rivers dry up for the most part, till it becomes a long day's journey from waterhole to waterhole. Contrasting the state of things that existed in 1882 with that obtaining at the present time, Mr. Jack remarks that thirteen years ago a typical waterhole consisted of a puddle about 10 ft. in diameter, and it was usually in possession of a large mob of cattle. "After the water had been boiled twice, and skimmed and decanted, it was good enough to make tea with." In those days it was nothing for a whole township to depart to a spot more favoured in regard to the supply of the precious fluid, returning after a rainy season, and the waterholes had become replenished. At best, however, both quality and quantity left very much to be desired. A little was done about that time by the Government, and by private individuals, in the way of conserving water in dams and tanks; but the cost was great and the supply disproportionately small. In 1885 the crisis came, for not only were cattle and sheep dying by hundreds of thousands, but even some of the western towns were threatened with extinction for want of water. A geological survey was decided upon, and then the scientists were able to show that a plentiful supply of water existed in the rocks at some depth. The report gives the geology in detail, and much of it is highly suggestive. Without entering into this, we may say that a number of artesian wells were put down, and that now there are over 200 bores in the interior, most of them successful. They are capable of producing in the aggregate 125,000,000 gallons per day. To fully appreciate what this quantity means, we may say that it is almost enough to satisfy the water requirements of London, which is, roughly speaking, 170,000,000 gallons per day. Many sterile districts in Queensland, which were practically uninhabitable, have now as much water as can possibly be required, and the cost of the whole was very little. The work has been carried out deliberately and unostentatiously, and reflects the greatest credit on the officials concerned. We must remember, though, that they were very materially aided by the goodwill of the colonists. They had very few "interests" to consult, were not reminded too often that "a source of supply properly belongs to the area in which it is geographically situated," and were not bothered about questions respecting "previous sewage contamination"; neither Royal Commissions nor County Councils dogged the heels of Mr. Jack and his assistants.

ACCORDING to Dr. S. Monckton Copeman's Report to the Local Government Board on an outbreak of diphtheria at Potterne, in the Devizes Rural District, one of the unhealthy elements in the district consists of an old and disused mill-pool, into which the village drainage passes by a culvert, and as the mill-pond receives also the drainage from some pigsties and from a laundry on its banks, it has gradually become almost entirely filled up with a black offensive mud, which is laid bare whenever the miller runs off the water. About fifteen years ago the mill-pond was cleared out, and the drainage of the upper portion of the village diverted from it, the Vestry, at the suggestion of the Rural Sanitary Authority, paying the sum of 50*l.* to the father of the present occupier of the mill for carrying out the necessary work. Since that time numerous complaints have been made as to the condition of the millpond, and quite recently there has been some correspondence between the miller and the Local Government Board, as the result of the Sanitary Authority having served him with a notice to abate the nuisance. He contends that inasmuch as his father was paid for carrying out the work formerly, the Sanitary Authority cannot now compel him to clean out the pool at his own expense. The mill is but little used at the present time, but the Sanitary Authority do not feel justified in going to the expense of buying up the mill, which would be necessary in order to fill up the pool. Attention is also drawn in the Report, as usual, to the defective disposal of excrement and house refuse. Pails have been provided by the Authority for the reception of excrement. The emptying and cleansing of these pails at present devolves on the occupiers of the premises to which the closets are attached, and the usual proceeding appears to be to tip the contents of the pails on to the bare ground in the neighbourhood of the closet, where, unless there is, immediately adjoining, a garden unoccupied by growing crops, such material is permitted to remain for an indefinite period. This is the old story of want of authoritative control over the inhabitants in regard to the removal of such matter.

THE investigation into the recent fatal collision at Herne Bay revealed an unsatisfactory state of things on the London, Chatham, and Dover line at that station. It is approached by a curve, and the signal-box is so constructed that the official in charge is unable to see the position of affairs at the home signal. The regulations forbid him to allow any impediment to be put in front of an advancing train, until he is satisfied that the latter has come to a standstill outside the home signal; but he is practically reduced to *feeling* certain in his own mind that the signals have been obeyed. His judgment had doubtless proved correct day after day and week after week, and the interpretation which circumstances compelled him to put upon the rule in question must have appeared justifiable, until the inevitable failure occurred. The wisdom of the strict letter of the rule is always very apparent in such cases, and laxity in the observance of it is, unfortunately, nothing unusual. Why the brake failed to arrest the goods train down the rather steep gradient (1 in 100) into Herne Bay Station will, of course, be investigated by the Board of Trade. In a report of the inquest it was stated that the gradient was 1 in 10—an error easily to be accounted for, but so obviously a slip that it would be thought impossible for anyone to be misled into accepting the figures as accurate. The gradient of the climb up to the summit of Snae Fell, in the Isle of Man, opened this week, is 1 in 12; yet the *Daily Chronicle*, in commenting upon the Herne Bay catastrophe, gravely repeats that "trains run into the station down a gradient of 1 in 10."

THE recently-issued "Annual Report of the Department of Mines and Agriculture, New South Wales, for 1894," presents us with a curious appendix on the "Comparative values of Hawksbury Sandstone

and Bowral trachyte for building purposes," which shows that whatever other qualities the Government geologist possesses he does not understand much about building stones. After explaining that the sandstone in question is liable to more or less rapid disintegration when used as a building stone, he arrives at the astounding conclusion that "the nearer a building is to the sea-water the more rapid the disintegration is likely to be." The officer does not give us any particulars concerning the structure or composition of the Hawksbury sandstone, and for anything in his report the architects in the colony, or the builders for whom the comparison has presumably been made, might believe that there actually exists in that stone something easily affected by chloride of sodium. It is stated that the walls of the Central Market building, recently pulled down, "showed the disintegrating effects of the saline atmosphere in a marked degree." But beyond that bald statement there is nothing to carry conviction. From what we know of the building material in question, we are inclined to believe that, whilst the Hawksbury sandstone exists in several varieties and qualities, the circumstance that some of it does not stand well is due rather to the fact that the material is not always carefully selected for city work, than to its being placed "near sea-water." Of course, we know well enough that some building stones are specially prone to succumb to atmospheric influences in seaside localities, but in nearly all cases where the matter has been carefully investigated, the rainfall, or undue exposure to driving rain, as compared with more favoured spots, has been held chiefly responsible for the accelerated denudation. That the best Hawksbury sandstone is inferior in point of durability to the stone commonly known in the building trade at Sydney as "trachyte" we are quite prepared to believe. The latter rock, which the report says is in reality a "syenite" (though no particulars are given to prove that), is quarried at the Gib, near Bowral, some distance from the capital; and the Government geologist sums up in favour of it on account of its crystalline appearance, and because it is "indestructible." He does not tell us, however, whether the stone takes kindly to the chisel, or otherwise, nor are there any details concerning its behaviour as a building stone. For any practical value it possesses the pseudo-scientific nonsense, constituting the appendix, might as well never have been written.

AN interesting paper on "Recent Engineering Improvements of the Clyde Navigation" has just been read at the Institution of Mechanical Engineers by Mr. James Deas, Engineer of the Navigation, one of the most interesting parts of it being the description of the concrete cylinders on which the quay walls were founded. These cylinders were about 20 ft. in diameter, and were built of segments 2 ft. 6 in. deep and 1 ft. 11 in. thick, the total height being 27 ft. 6 in., made up of eleven complete rings. The bottom ring was formed on a cast-iron cutting ring of inch metal and 2 ft. deep. The cylinders were sunk by loading with 300 or 400 tons of iron, and at the same time digging out the enclosed sand and gravel by specially-designed excavators. When they were sunk to the full depth, they were cleaned out and filled solid with concrete. The concrete for the walls of the cylinders was composed of *one* part strongest Portland cement and *five* parts gravel or broken stone and sand mixed by machinery and well rammed into wooden moulds. Foundations of this kind have occasionally been used for large buildings on wet, soft ground, and the principle might with advantage be more frequently adopted.

THE third half-yearly report since the opening of the Canal was submitted to the shareholders of the Manchester Ship Canal on Tuesday last. It is not an exhilarating report. The capital expenditure now stands at very nearly fifteen millions, while the profits from the working of the Ship Canal for the half-year are only 7,000*l.*, and of the Bridgewater undertaking about 18,000*l.* In all, therefore, a little over 25,000*l.* are available for interest—a mere trifle, for the half-yearly interest due on mortgage-debentures alone is upwards of 160,000*l.* The only satisfactory feature about the report is that the traffic and profits are steadily increasing.

WE regret to hear that the Municipal Council of Avignon have passed a resolution to memorialise the Government in favour of the demolition of the ancient ramparts of Avignon on the side facing the river. The artists and archæologists interested in the place are, of course, opposing the scheme as strongly as possible. The fortifications, which date from the fourteenth century, are classified among the "Monuments Historiques," and it is hoped that the Government will refuse its consent. There are no doubt cases in which it seems almost necessary, for a town which is increasing in its modern development, to disturb ancient fortifications, though sometimes the necessity is more fancied than real, and the demolition results in depriving a town of a great deal of its picturesque and historic interest without really giving it any compensating practical advantages. But the interest of Avignon, in a historical sense, is so exceptional that only the most indubitable proof of sanitary necessity could justify the destruction of its ancient appearance.

AN architect has forwarded us a copy of the instructions to architects for a competition for a new school for the School Board of Swansea, from which it appears that after offering some very meagre premiums they promise that the architect whose design is placed first by the assessor will "probably" be appointed to carry out the work at a commission of 4 per cent. on the outlay, which commission is to include travelling expenses. The assessor is Mr. E. R. Robson, and we should naturally like to know whether he was consulted on these provisions and assented to them. We should hardly think so. Instructions for competitions are often drawn up before the appointment of an assessor, and without his being consulted in regard to them; a great mistake, which often leaves room for misunderstandings and injustice that might easily have been avoided. Has it been so in this case?

THE ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.*

Wednesday.

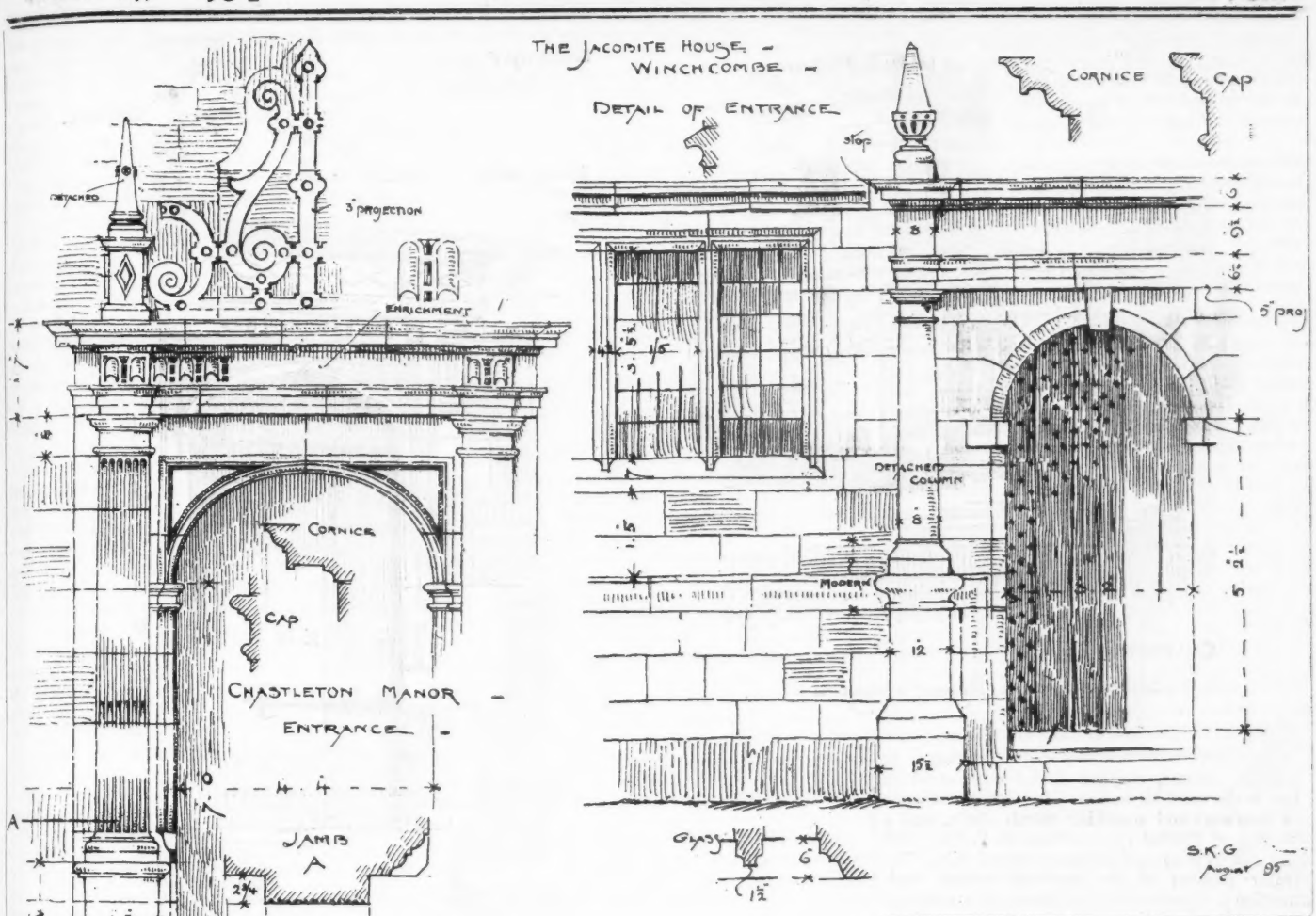
ON this day the excursionists went somewhat far afield, some sixty miles of railway travelling as well as coach riding, forming part of the day's proceedings. Despite this somewhat large encroachment on their time, general satisfaction was expressed with the excellent bill of fare provided for the day. Detraining at Moreton-in-the-Marsh, the party drove to Batsford Park, a new house erected for Mr. A. B. Freeman-Mitford, C.B., from the designs of Messrs. Ernest George & Peto. This was generally regarded as one of the happiest designs of Mr. Ernest George, and the somewhat novel experiment of visiting a modern building on an A. A. excursion was universally approved. The house is built of Chipping Campden stone, with stone slates on the roofs from the Forest of Dean, and the delightful colour of these materials was fully appreciated. Internally the chief features are the two-storied great hall, with staircase at one end, and the ball-room; but these are by no means all, as with Mr. Ernest George's customary thoroughness, every detail is a source of pleasure. The gardens are charmingly laid out, and suggest, with their terraces and garden-houses, reminiscences of Montacute. After considerably more than the schedule time had been most enjoyably and profitably spent, even though sketching, in accordance with the general Association etiquette, was tabooed, the excursionists returned by way of Moreton-in-the-Marsh, where a short halt was made to inspect the market-house, the gift of Mr. Freeman-Mitford to the town, and erected from the designs of Messrs. Ernest George & Peto to provide a permanent home for the ancient market, first instituted in the reign of Henry III. by the Abbot of Westminster, then lord of the manor. Thence the party proceeded by way of the four-shire stone (marking the junction of Gloucester, Worcester, Warwick, and Oxford) to Chastleton, which although the scene of a battle in 1016 between Edmund Ironside and Knut, when the latter was defeated with great slaughter, is of more interest from the existence and history of the Great House. After being for many years in the hands of the Catesby family, Chastleton was, in 1602, sold for 4,000*l.* to Walter Jones by Robert Catesby, the deviser and principal leader of the Gunpowder Plot, and part of the purchase-money was devoted to buying the gunpowder. Walter Jones, a rich woollen merchant, of Witney, pulled down the Catesby house, and commenced the erection of the existing one in 1603, completing it probably in 1614; certainly, at his death in 1632, the house was comfortably and fully furnished, and much of the furniture included in the inventory of his effects is still to be seen in the house he erected, which remains much as he left it, with the exception of a new roof and some further necessary repairs carried out by John Jones, who possessed the property from the death of his father in 1761 till his own decease in 1813. Full of interesting panelling, chimney-pieces, ceilings, and old furniture, the house provided ample occupation for the sketch-books of the party during the two and a-half hours of their stay, the long gallery, 70 ft. by 18 ft. 6 in., with its beautiful segmental plastered ceiling being, although now somewhat dilapidated, possibly the chief centre of attraction. Little heed was given to the small church of St. Mary, part of which still comprises some of the work of Bardolf de Cestreton, who built in A.D. 1100 a church on the site of an ancient British burying place. The church was further enlarged by Roger, son of Bardolf, and a subsequent Bardolf de Cestreton, and is quaint and picturesque, with several attractive features, old tiles, a Jacobean pulpit, southern tower, sanctus bell turret, and several brasses. All too soon the party quitted Chastleton to catch the train at Chipping Norton Junction for their return to Cheltenham.

Thursday.

Once more the railroad was utilised, and the party proceeded by train to Evesham, where they were met by carriages and driven to Broadway, the straggling village of hardly more than one street, on the wide part of the high road from London to Worcester, which justifies the name of the village. Full of picturesque houses, mostly of the seventeenth century, Broadway derives its interest rather from the grouping of its houses and their colour, mostly the accidental effect of time on the universal stone building, than from any richness of detail. It is, indeed, a much-needed lesson to many of our modern architects: the small value of detail and the greater power of sobriety, good proportion, and massing. The richest buildings are the "Lygon Arms," date 1620, the old Priory House of the Abbey of Pershore, and the so-called Tudor House. The church, dedicated to St. Eadburga, is about a mile south of the village, and was accordingly visited by few of the party, who found the time at their disposal all too short for sketching in the village. The church is nevertheless well worth a visit for a study of simple, well-designed grouping, with its central tower, nave, aisles, chancel, and low transepts.

Broadway is but one, although possibly the largest, of many interesting stone-built villages of like character in the immediate neighbourhood, such as Stanton, Saintsbury, and others nestling in the Cotswolds which might, had time permitted, have been advantageously included in the programme, and at one such village, Buckland, a short halt was made. The Church of St. Michael is chiefly of late thirteenth century Early Decorated work, with Perpendicular clearstory and chancel, and possesses a considerable amount of ancient woodwork, fifteenth century pews and roof, sixteenth century wall-seats with canopies, and a good eighteenth century west gallery and pulpit. There is also some good fifteenth century glass in the east window, the remains of a rood-loft stair, a sanctus bell-cote, and a west tower of admirable proportion and cleverly designed buttressing. In the churchyard the cross has been restored, the base only being original.

* Concluded from last week, p. 118.

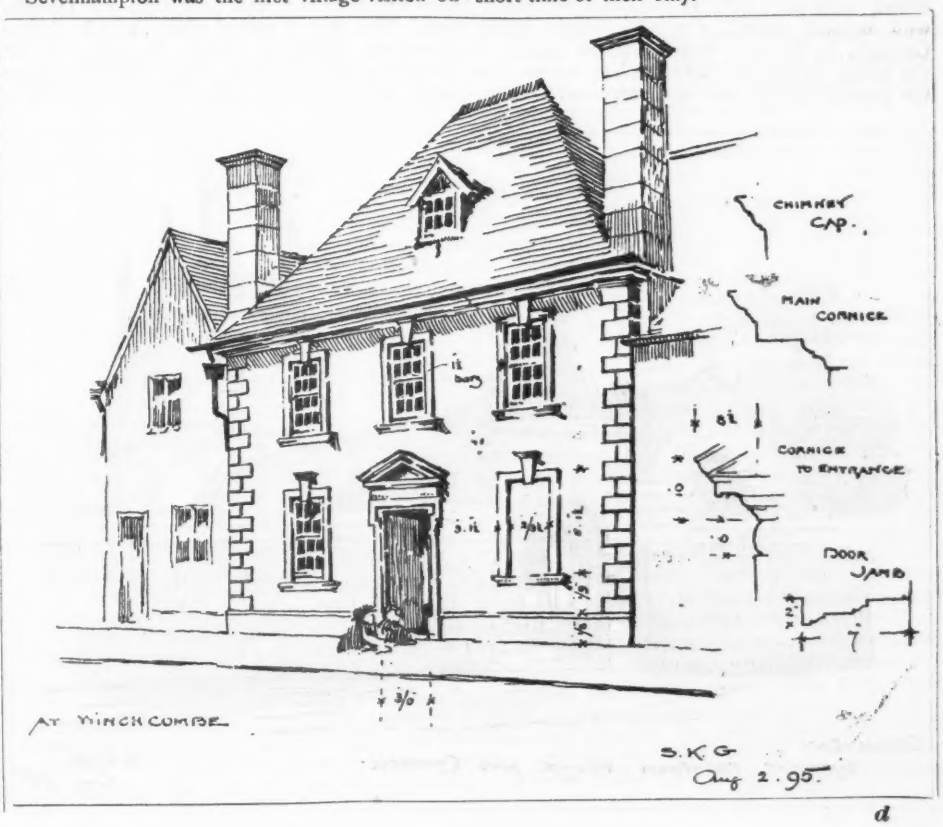


Buckland has amongst its old houses the peculiarly interesting rectory, built by the Abbots of Gloucester, and largely of fourteenth-century date. The hall particularly is worthy of study, with its hammer-beam roof and timbered gallery. Some of the cusped windows in the hall have their original shutters, and indications remain of these having existed in the upper lights, where they were frequently omitted in work of this date. Some charming old glass is well preserved in the windows, both in the upper and lower lights.

From Buckland the excursionists drove through Stanton without stopping, to their final objective point of the day, Stanway Hall. This is the residence of Lord Elcho, and is said to have been designed by Inigo Jones for Sir Paul Tracey. The house bears generally a thoroughly Jacobean character, but with some detail that has been supposed to be later work, and it may be suggested that these apparent variations are the result of Inigo Jones's journey to Italy in 1612, which, although not the first, was in all likelihood the most important in its influence on Jones's knowledge and ability. As Paul Tracey became a baronet in 1611, and died in 1626, it is hardly unreasonable to conjecture that in Stanway Hall we have an example of the work of Inigo Jones, before and after the refining and moulding influence of Palladio and the Italian Renaissance had brought his powers of design to their highest point of excellence. The design, whether by Inigo Jones or not, is evidently the work of a master hand, and the effect, particularly of the entrance courtyard, is remarkably satisfactory, with its gatehouse at one end, gateways on two sides, and the house with its immense bay-window to the hall on the remaining side. Internally, there is little of interest beyond the great hall, as repeated alterations and re-arrangements have obliterated much of the original disposition. The grounds are pleasing, and still retain sufficient of their former formal arrangements to give piquancy and interest. In the grounds is an old tithe-barn of considerable size, which formed part of the possessions of the Abbey of Tewkesbury, to which community Stanway belonged until the Dissolution, and the transfer of the property to William Tracey, grandfather of the builder of the house. The churchyard adjoins the courtyard of the house, and the church is an excellent example of a Tudor restoration of an earlier structure, much of the old masonry, including even some Norman corbel tables, having been re-used in the almost complete rebuilding. The general effect of the church is good, largely due to the pleasant proportions of the square tower. A two hours' ride from Stanway brought the excursionists back to Cheltenham.

Friday.

Sevenhampton was the first village visited on this day, attention being first directed to the Church of St. Andrew, which is mainly of thirteenth-century date, but derives its most piquant feature from the peculiar arrangement of the Perpendicular central tower, which extends partly into the chancel and partly into the north and south transepts, necessitating internal flying-buttresses from its western piers to the western wall of each transept, and reminding the excursionists of Minster Lovell Church, in Oxfordshire. The south porch has a very charming doorway, with four centred arch and pierced tracery head. There are a few late brasses in the church of some interest. The manor-house is a good example of the usual seventeenth-century type, picturesque in its grouping and simple in detail. A pigeon-cote and a seventeenth-century sundial in the garden attracted and occupied the pencils of many of the excursionists during the short time of their stay.



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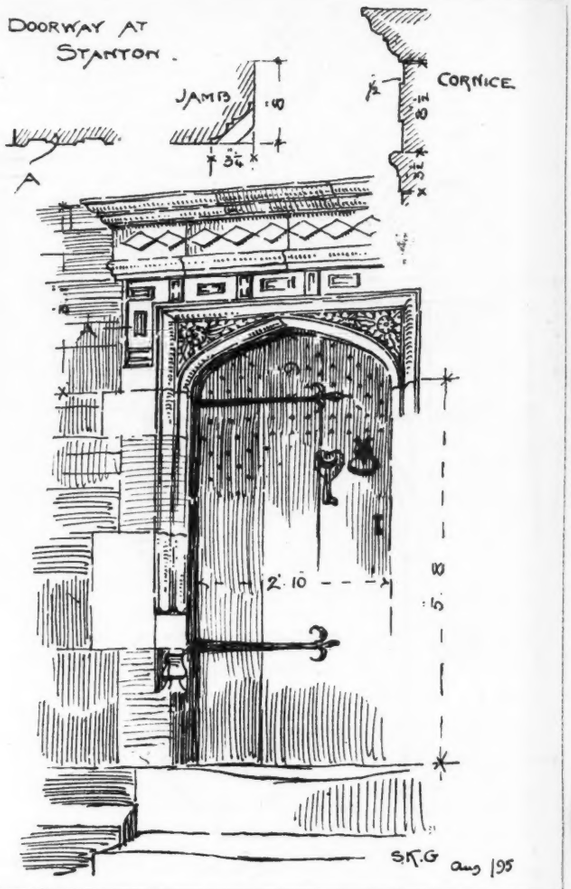
CHASTLETON CHURCH
Sketch from the Manor House -



From Sevenhampton the party proceeded to Charlton Abbots, another manor-house at which lace is the chief attraction. In this house are a few doorways and panelling worth study, and a staircase of similar type to that at Postlip, with solid oak steps around a square central pier. The greater number of the members turned their attention to the exceedingly picturesquely-arranged group of farm buildings following the slope of the hill on which the house stands. The church received small notice, being at the bottom of a steep hill, and the day being very hot.

The midday halt was made at Winchcombe, where a lengthy stay of two and a-half hours enabled the excursionists to see pretty thoroughly the many objects of interest. Winchcombe is still a market town of considerable size and importance, and of great antiquity. Anciently it was called Winchelscomb, of which its modern name is obviously a contraction. During the Heptarchy, if not the metropolis of the Kingdom of Mercia, it was at least the residence of some of the Mercian Kings, of whom Offa founded a nunnery here in A.D. 787. Cenulph, who succeeded to the throne of that kingdom after the decease of Egferth, Offa's son, who survived his father only a few months, had a palace here, and in 798 A.D. laid the foundation of the stately abbey for 300 monks of the Benedictine order, which he endowed with an ample revenue, and dedicated with unusual splendour to the Virgin Mary. Cenulph, in the year 819 A.D., was buried in the abbey which he had founded, where also the remains of his son and successor, Cenelm, were deposited. The young king, after a reign of one year, having been, according to some, accidently slain, or, according to others, cruelly murdered at the instigation of his unnatural sister, Quendreda, in the hope thereby of securing to herself the throne, was first obscurely buried, and afterwards, on the discovery of the deed, removed with much funeral pomp and interred near his father in the abbey church. He was at length canonised, and the numerous pilgrimages made to his shrine much augmented the revenue of the monastery, which was subsequently re-dedicated to the Virgin Mary and St. Cenelm. The abbey afterwards came into the possession of secular priests, and had almost fallen into decay when Oswald, Bishop of Worcester, in 985 A.D., reformed its discipline, recovered the lands of which it had been deprived, and restored it to the Benedictine monks, who held it till the Dissolution. This was a mitred abbey, and its possessions were numerous, for, at the period of the Norman survey, no fewer than nineteen manors were annexed to it, independently of Winchcombe itself, but the monks having opposed the Conqueror, were by him deprived of many of their lands. The buildings are reported to have been exceedingly magnificent, and the establishment so prosperous at one period, that it is said to have been "equal to a little university." Very few traces of it, however, remain; but a memorial is preserved in the name of a hamlet still called the Abbey demesnes. The cultivation of tobacco, which is said to have been first planted in Winchcombe after its introduction into this country in 1583, was, for a considerable time, a source of much profit to the inhabitants, but in the twelfth year of the reign of Charles I., that trade being restrained, the plantations were neglected.

STANWAY.
GATEWAY BETWEEN HOUSE AND CHURCH
S.K.G. Aug 1895

The church of St. Peter, partly erected by Abbot William in the reign of Henry VI., and completed at the expense of the parishioners, munificently assisted by Ralph Boteler, lord of Sudeley, is a fine and spacious example of Perpendicular work, but the detail is somewhat coarse. It is one of the few examples of a church without a chancel arch, the division between nave and chancel being marked by a screen and an elaborate upper screen or glorified roof truss. The font, dated 1634, is a curious instance of the Jacobean attempts to follow Mediæval lines. The church has been thoroughly restored, but contains a few fragments of old glass, an eighteenth-century chandelier, and an ancient almsbox.

In the town there are many picturesque houses, chiefly of seventeenth-century date, the most striking being the so-called Jacobite house close to the church, which has an old German wrought-iron handle to its garden-door that afforded much employment to the excursionists. The almshouses founded by Lady Dorothy Chandos, of Sudeley Castle, about 1573 A.D. were nearly rebuilt in 1841, and contain only a few fragments of the older structure.

From Winchcombe a short drive brought the party to Sudeley Castle, said to have been built by Boteler, Lord Sudeley, in the reigns of Henry V. and VI. He, however, sold it to Edward VI. for fear of confiscation, and by him it was granted to his uncle, Lord Seymour, who married Queen Katherine Parr, many of whose personal effects are here to be seen. Mary bestowed it upon Sir John Bridges, whom she created Baron Chandos of Sudeley, whose grandson, the third Lord Chandos, here entertained Queen Elizabeth in 1592 A.D. George, the sixth lord, having embraced the cause of Charles I., the castle was twice besieged by the Parliamentary forces, who reduced it to ruin. It was purchased by the Dents, and restored under Drayton Wyatt, with

the exception of the banquetting-hall, which still remains charming in its ruin, a mere shadow of its former splendour. The house is now a marvellous museum chiefly, but not entirely, of memorials of the Tudor and Stuart period, rich in pictures, tapestries, furniture, and especially silver, and by permission of Mrs. Dent these were seen. Mrs. Dent accompanied the party, and afterwards entertained them at tea in the hall. The chapel has much that is of interest, and was restored by Sir Gilbert Scott and Drayton Wyatt. A formal garden and an old ruined tithe-barn are also amongst the objects of interest.

Leaving Sudeley, a charming drive over the Cotswolds, by way of Postlip and Bishop's Cleeve, brought the party back once more to Cheltenham, where, in the evening, was transacted the usual business of electing an Excursion Committee for the next year, and discussing future fields for exploration.

Saturday.

Leaving Cheltenham by rail in the morning, the excursionists proceeded to Gloucester, where they were met by Mr. F. W. Waller, F.R.I.B.A. Visiting first the Deanery, a considerable time was occupied in listening to the theories and speculations of the Dean on the archæology of the Deanery, so that the time possible for the Cathedral was somewhat limited, and Mr. Waller had to hurry the party more rapidly than either his subject or his inclination would have otherwise dictated. Much interest was displayed in the charming wall-tablet to the memory of Canon Evan Evans, Master of Pembroke, designed by Mr. H. Wilson, and executed by Mr. F. W. Pomeroy, in bronze and silver, Mexican onyx, and *lapis lazuli*.

After luncheon, Mr. Waller again escorted the excursionists through the City of Gloucester, pointing out the old houses and churches and some of the most notable modern buildings. Then in the evening the party broke up after one of the most enjoyable of recent excursions, the beautiful country and the fine weather, which was uninterrupted after Tuesday, contributing largely to the success of the outing, and minimising the inconvenience of the large amount of travelling which the selection of Cheltenham as a centre necessitated.

THE BRITISH ARCHÆOLOGICAL ASSOCIATION:

ANNUAL CONGRESS.

THE Fifty-second Annual Congress of the British Archæological Association commenced on the 12th inst., at Stoke-upon-Trent, by the invitation of the Mayor and Corporation of that ancient town.

A large party of the members of the Association, of the Reception Committee and their friends, assembled in the Council Chamber of the Town Hall (which was kindly placed at the disposition of the Congress for the evening meetings), and a hearty welcome to the town of Stoke was accorded the Association by the Mayor, Mr. J. Birks. Mr. W. S. Brough, on behalf of the members of the North Staffordshire Field Club and Archæological Society, also offered a cordial welcome to the visitors.

The Duke of Sutherland, the President of the Association, being unable to attend the meeting, Mr. Thomas Blashill, one of the Vice-Presidents, in the regrettable absence of the Treasurer, Mr. E. P. Loftus Brock, F.S.A., through serious illness, acknowledged the heartiness of the welcome that had been extended to the Association, and said he fully believed they would have an instructive and pleasant week in the district. They were prepared to see much that would interest them, and they knew there were many good archæologists in the neighbourhood, who were devoting their time and energies to afford them the fullest information upon the different subjects that would occupy their attention during the coming week. Under such circumstances they could not fail to have a successful and pleasant meeting.

In order to save time, the inaugural address, instead of being delivered now, was postponed until the evening, and a move was made to the Parish Church of Stoke, where, in the chancel, Mr. Chas. Lynam directed the attention of the members to the monument to Josiah Wedgwood on the north wall. This monument was originally in the old church, but was removed in 1830, when the present church was built. Wedgwood himself lies buried in the old churchyard. Under the leadership of Mr. Lynam the members next proceeded to the churchyard, where he drew the attention of the party to the, perhaps, oldest-worked stone in the County of Stafford, viz., the remains of the old churchyard cross. It was dug up beneath the foundations of the chancel of the church in digging a grave some years ago. It was disinterred in fragments, but upon being pieced together it became evident it had been used as the lintel of a door. There can scarcely be a doubt that it once formed a portion of the shaft of an ancient cross, and it was thought better to re-erect the pieces of the stone without adding anything, and leave them to tell their own story. Mr. Lynam said that Stoke had always been an independent parish; it was of Saxon origin, and had never been subject to monastic or other ecclesiastical organisations.

A heavy storm of rain now commenced, notwithstanding which the party proceeded to view the remains of the ancient church, a few yards distant, which had been recovered by Mr. Lynam, and re-erected by him as they are now to be seen. Mr. Lynam said that about fifteen years ago some ancient mills stood near the churchyard (the Glebe Mills, Boothen), the river Trent being only a few yards away, and those mills caused the damming of the water, resulting in the periodical flooding of the district. The mills were removed, and some stones which had been used in the construction of the weir and bye-wash were brought to light. These proved to be stones belonging to the original arcade of the south side of the nave, with the respond piers of the north arcade, and at length the whole of the stones forming the arches and piers which they now saw were recovered from the river, and by the desire of the then rector, now the Bishop of Shrewsbury, they were built up again exactly in their original position as nearly as could be ascertained. These remains consist of two bays of the original Norman nave. The foundation-walls of the chancel were then unearthed, and the jambs of the priests' doorway on the south side were disclosed, also the foundation of the south porch beneath which lie the remains of Josiah Wedgwood and his wife and their youngest son, Thomas. On the north wall of the present church there are marble tablets to the memory of each of the Wedgwoods. The thirteenth-century altar-slab and the font are also still within the area of the old church, and there are several carvings of Early Norman date built up in the walling of these arches. Thus these original arches, being well buttressed and the walling protected from the weather, are likely to stand for many years a conspicuous feature in the old churchyard, and a fitting memorial of Mr. Lynam's indefatigable zeal as an archæologist. The old stones have not been shaped or tooled in any way, but are built up just as they were taken from the river.

Carriages were now taken for a drive to Bury Bank, near Stone, and the rain ceasing, the weather cleared, and a lovely afternoon succeeded. Bury Bank is situated on the Trentham estate of the Duke of Sutherland, and by his Grace's permission the archæologists, under the guidance of Mr. Collins, traversed the great earthwork, and having reached the summit, Mr. C. Lynam gave an interesting description of this ancient camp. The plan, he said, was that of an irregular ellipse about 140 yds. in length and 100 yds. in width, the area being about 3½ acres. Whether or not the origin of the camp was British, as some antiquaries thought, there could be no doubt of its having been occupied by the Saxons. The camp consists of an encircling wall or vallum, 30 to 40 ft. wide and about 5 ft. in height, beyond this a broad flat space forms the top of the great fosse, which is bounded by a second wall along the slope of the hill. The camp is approached on the north-west by a narrow roadway between two long-flanking mounds of irregular shape protecting the entrance. The earthworks are well preserved and clearly-defined, and from the top of the mound a magnificent view is obtained, Stafford Castle being distinctly visible. Some extracts from Dr. Plot's "History of Staffordshire" were read by Mr. Lynam, from which it appears that Bury Bank was the seat of Ulferus, King of Mercia (657 to 676), who, tradition asserts, murdered his two sons for embracing Christianity.

Returning to the carriages, the party proceeded to Trentham Hall, where they were received by the Rector of the Parish and conducted to the church immediately adjacent, and which serves as chapel to the Hall. The church has been rebuilt, but the Transitional Norman nave arcade remains. There is some very good Jacobean woodwork in the chancel and side screens. The visitors were conducted through the hall, and admired the collection of antiques and other treasures, and were provided with tea and fruit served in the sculpture gallery. The gardens were greatly admired. Returning to Stoke after a pleasant drive of some ten miles, the members of the Congress reassembled in the evening at the Town Hall at a conversazione as the guests of the North Staffordshire Field Club and Archæological Society.

Here they were received by the President of the Society, Mr. Wells Bladen, and after a short interval Mr. W. S. Brough delivered the inaugural address, and read a most interesting paper entitled "Notes on North Staffordshire," in which he summarised, in an admirable way, the general history of the county. "In the days of the Britons," said Mr. Brough, "Staffordshire was called the holy district, or the country of the priests." Owing to its altitude and the inclemency of the climate in the winter, and the many natural fastnesses almost impregnable in the warfare of those early days, it continued the stronghold of the Britons against the assaults of the Romans, and remained unconquered and uncivilised. To the Saxons, also, the Britons here presented an undaunted resistance, and the hills of Staffordshire had witnessed many a fierce encounter. The county in early times was in great part covered by immense forests, in which the bear, the wolf, the beaver, the wild boar, the badger, and the wild bull ranged at will, and traces of these animals remained in the place-names of the present day, such as Wild Boar-clough, at the foot of Shutlingslow, Badgers'-clough, and many others. Amongst the dwellers in the wild district of Biddulph Moor there is a tradition that, during the period of the third crusade, Herbert de Langtry brought thither twelve Saracen captives. At all events, the dwellers in that region had distinctive characteristics; their cottages were scattered over the moor, and the people did not congregate, the men were black-haired and swarthy in appearance, and the women were often red-haired. Their dialect was quite different from that of North Staffordshire, and some of their words could be traced to an Arabic source. Mr. Brough also directed attention to the great natural beauty of the county, and said that from Cloud Hill might be beheld one of the finest views in England, embracing nine counties. After a cordial vote of thanks to Mr. Brough for his most able paper had been moved by Mr. Thos. Blashill and enthusiastically accorded, Mr. A. Scrivener exhibited, by the aid of the lime-light, a large number of photographs of places to be visited by the members of the Congress during the week, and at about eleven o'clock the company separated. A valuable and interesting collection of objects of antiquarian interest was exhibited by ladies and gentlemen of the neighbourhood, and remained on view until the middle of the week.

On Tuesday the members and visitors set forth at an early hour from the hotel for a long day's driving. The weather was uncertain, and there were several heavy showers. The first halt was at Abbey Hulton, a thirteenth-century Cistercian house, the foundations of which were disclosed some fifteen years ago, previous to which date no vestige remained above ground, but, in excavating for the foundations of the farm-house, which now stand exactly on the crux of the old church, remains of the old buildings were met with, and by direction of the owner, the late Rev. Walter Sneyd, further investigation was made, and many relics were found, including tiles, some highly glazed, exhibiting a great variety of patterns, mostly of thirteenth century date. Some Roman pottery was also discovered, and a leather bottle dug up in a field in the abbey grounds. A coffin containing the supposed remains of Lady Elizabeth Audley, the hair being found in good preservation, was also discovered. Most of these relics were removed at the time to Keele Hall, the residence of Mr. Sneyd, where they are carefully preserved. Mr. Lynam described the abbey, and said there was scarcely a single feature of the abbey which had not been brought to light with more or less precision, and he had been enabled to lay down an accurate plan of the original establishment. The church lay to the north, its longer axis east and west, the cloister garth was on the south, the chapter-house on the eastern side, the refectory on the south side, and on the west the domus conversorum, the frater or day-room running north and south in continuation of the chapter-house range. A stream which came from the hills eastward of the site supplied the house with water, and furnished the power for the abbey mill, which stood to the south-east of the conventual buildings, and supplied the pools which surrounded the buildings on the north and east sides, the tail water of the mill running into an elaborate

system of fish-ponds lying between the abbey buildings and the river Trent. The abbey was founded in 1223 by Henry de Audley, and it was dedicated to the Blessed Virgin and St. Benedict. It is situated in the parish of Burslem. The party now proceeded to Milton station for the train to Leek, where Mr. Brough, the leader for the day, conducted them to the Parish Church dedicated to St. Edward. Mr. Lynam described the building, and said it had always been the prominent feature of the town, which was known as the metropolis of the Moorlands. In 1296 a monk of Croxden Abbey recorded that the church at Leek, and the whole town with it, were burnt down. There are no remains of the church of that early date, but the remains of its immediate successor, together with other additions and alterations, are so numerous as to render this church an exceedingly puzzling problem to the ecclesiologist. Mr. Lynam has been for some time past making a study of its very interesting and most perplexing features, with the view of producing a monograph of its architectural history. The earliest portion of the existing building appears to be the lower part of the tower situated at the west end of the nave. It is a fine tower, with an embattled parapet, having eight pinnacles, the upper stages being at least of two different dates. There seems to be evidence of fire on some of the stonework. Round the base of the church there are twelve different characters of moulding, and the numerous alterations the fabric has undergone render an intelligible description of the church hopeless without illustrations. There are two very large rose windows which might have been transept windows at one time, probably additions to the earlier church. The interior of the church is, if possible, more difficult of interpretation than the exterior. The timber roof is remarkable. The porch is dated 1670. In the belfry of the tower is preserved the old cucking-stool. The registers date from 1621. In the churchyard there stand the remains of two early crosses of perhaps pre-Norman date, similar in their foliage and interlaced work to those in other Staffordshire churchyards.

After luncheon at the Swan Hotel, carriages were again in requisition for the drive to Dieu-la-Cresse Abbey. The remains of this old Cistercian foundation above ground are very scanty; only some fragments of walling and portions of the piers of the crossing, the south aisle and south transept, now remain. The Rev. W. Beresford, Vicar of St. Luke's, Leek, described the remains. The abbey was founded in 1214, by Randal de Blundeville, Earl of Chester, in consequence of a remarkable dream he had had by which he was directed to partake of the Blessed Sacrament at the Abbey of Poulton, in Cheshire, and afterwards to translate some of the monks to Leek. Leaving the abbey, the drive was continued through a beautiful country, and beside Rudyard Lake to Rushton Church. This very quaint little building is known as the "Chapel in the Wilderness," a name characteristic of its lonely and secluded situation at the head of Rudyard Lake. It was originally entirely a timber building; the roof timbers of oak are of massive dimensions, and the under-sides of some still show the grooves which received the upright boarding of the sides. The walls are now of stone. It has undergone many changes, but is still a building of great picturesqueness. The Rev. S. Thomas, the Vicar, received the visitors. He said the church belonged to the family of Swythamley, and members of that family were formerly buried in the chancel. The sanctuary was supposed to be the oldest portion, and was of the thirteenth century. On either side of the little porch were stones, supposed to be Druidical. Rain again began to fall very smartly as the drive was resumed, but the ancient remains known as the "Bride Stones" on Biddulph Moor were reached. These consist of several large stones, supposed to be a part of a Druidical circle, and are the more interesting as being the only known prehistoric monument in the county of Stafford. Some charcoal and human remains had been found in excavating around them. Biddulph Old Hall was reached soon after, where the members and visitors were cordially received, and offered tea and light refreshments by the kindness of Mr. W. T. Tayford. The ruins of this very interesting old Elizabethan house (date 1580) occupy an extensive area. The Hall was greatly damaged by the cannon of the Parliamentarians, being held for the King by Sir Francis Biddulph. Fire afterwards greatly increased the damage done, and finally plunder and decay completed its ruin. Time pressed so much that only a very short stay could be made in order to get back to Stoke by special train. In the evening at the Council Chamber of the Town Hall, under the chairmanship of Dr. A. M. MacAldonie, a paper on "Staffordshire Folk-Lore" was read by Miss Burne, and one by the Rev. W. S. Lach-Szyrma, D.D., on the "Conversion of the West and Midlands of Britain" was read, in the author's absence, by Mr. Geo. Patrick, Hon. Sec. Mr. W. de Gray Birch, Hon. Sec., also read a paper by Mrs. Collier, entitled, "Historical Notes on the Town and Priory of Stone, co. Stafford."

On Wednesday Mr. A. Scrivener was the leader of the party, and under his guidance the members travelled to Lichfield by train. The cathedral was soon reached by carriages from the station, and while waiting the conclusion of the morning service, Mr. Scrivener explained by the aid of a large ground plan the various dates of the building. Very soon the Dean, the Rev. Dr. Luckock, came to meet the company, and kindly conducted the members round the edifice. Commencing his remarks at the north transept, he pointed out the remains of the Early Norman building in the arch of the north choir aisle. The window of the north transept was a restoration of the old thirteenth-century window, and replaced a debased Perpendicular one which had become dangerous. On taking it out, the old stones and arches of the former were discovered, only a few being missing, so that the restoration was a genuine one. Passing into the choir aisle, the Dean pointed out the skilful manner in which the entrance to the chapter-house was effected, and, leading the way through the vestibule, the visitors entered that building, which, said the Dean, was believed to be unique, the central pier, from which the ribs of the groining radiate, being extended upwards, and carrying the vaulting of the apartment over it, which is now used as the library of the Cathedral. Here the visitors were shown some rare MSS., particularly St. Chad's Gospels, containing the Gospels of St. Matthew and St. Mark, date 720 (this book originally came from Llandaff); also an illuminated MS. of Chaucer's "Canterbury Tales." Descending to the Cathedral, the Dean led the way into the choir, pointing out the various features of importance, and, in the Lady Chapel, he explained the Flemish sixteenth century glass brought from the Abbey of Herckenrode, in Belgium, by Sir Brooke Boothby, in 1803. Passing through the south aisle of the choir and down the nave to the west end, the very pronounced deflection of the axis of the eastern end was noticed, and then the party followed the Dean round the exterior, where, with a hearty vote of thanks from the members, he took his leave. The present cathedral is the successor of a series which have occupied the same site from the days of St. Chad, about 670. It was commenced about 1200, and was completed about 1376. It was illustrated and described in the *Builder* Cathedral Series, in 1891.

The company now adjourned to the Swan Hotel for luncheon, and afterwards departed by train for Tamworth and visited the fine church dedicated to St. Editha. The vicar, the Rev. E. D. Pollock, received the party, and, in the chancel, read a short description of its foundation and history. Originally founded in 963, it was in 1069, a collegiate church with a dean and six canons. There are considerable remains of Norman work, and the original structure seems to have consisted of a nave, chancel, and north and south transepts with central tower. The east and west arches of the tower have been cut away, and the chancel and nave are now undivided. A great fire destroyed the tower and the church in 1335, and the marks of the conflagration can still be seen upon the Norman masonry. The present western tower was erected in the fifteenth century, and possesses the peculiarity of a double staircase for the college and the parish ringers; one entered from the church, and the other from the outside, and one staircase passes over the other. There is a crypt beneath the south aisle, with the remains of a fresco painting, and some stone coffin-lids can be seen built into the roof, of about the fourteenth century. The nave consists of four bays, late fourteenth century. In the north transept there is a chapel to St. Nicholas. Some traces of herring-bone masonry may be observed in the older portions of the building. The south side wall of the chancel was originally an exterior wall, and a Norman window and doorway and flat buttress remain in the present aisle. Over the north porch is a muniment-room. There are several interesting monuments—one an altar-tomb with recumbent effigies of Sir Baldwin Freville and his wife, date 1400, and one to Lady Jane Freville, date 1339; also an altar-tomb and effigies of Sir John Ferrers and Lady Dorothy, 1512. The church was restored in 1876 by Mr. Champneys. Mr. Thos. Blashill made some remarks upon the church, pointing out its peculiar characteristics, and considered that it was originally a church without aisles. Tea was offered the visitors by the Vicar at the Vicarage, and then the party walked to the ancient castle, and Mr. Blashill gave a general history of the fortification. The high and steep mound upon which the castle stands is said to have been thrown up by Queen Ethelfreda in 918. The castle is not mentioned in "Domesday," says Mr. G. T. Clark in his "Military Architecture." It is, with half the town, situated in Warwickshire, the church and the other half of the town are in Staffordshire. Mr. Blashill traced the ownership of the castle from the De Spencers and Marmions to the present holders the family of Townshend. He also pointed out the remains of herring-bone masonry in the walls. The keep was a shell keep after the type of Corfe and other examples.

The train was taken back to Stoke, and in the evening the members were entertained by the Mayor (Mr. Birks) and the Mayoress at a conversazione at the Town Hall, when Mr. Scrivener continued his exhibition of lantern views of places of interest in the county, describing very clearly their principal characteristics. The exhibition of curiosities was also on view, including some examples of the "New Race" pottery lately discovered by Professor Flinders Petrie in the Nile valley, contributed by Mr. E. P. Loftus Brock, which excited much attention.

On Thursday the excursion was a very long one, for leaving the hotel about 8.40 a.m. Stoke was not reached again until nearly 8 p.m. Under the leadership of the Rev. T. W. Daltry the party proceeded first by train to Newcastle-under-Lyme, where, at the Town Hall, the ancient charters and regalia were inspected by the courtesy of the Mayor and Corporation.

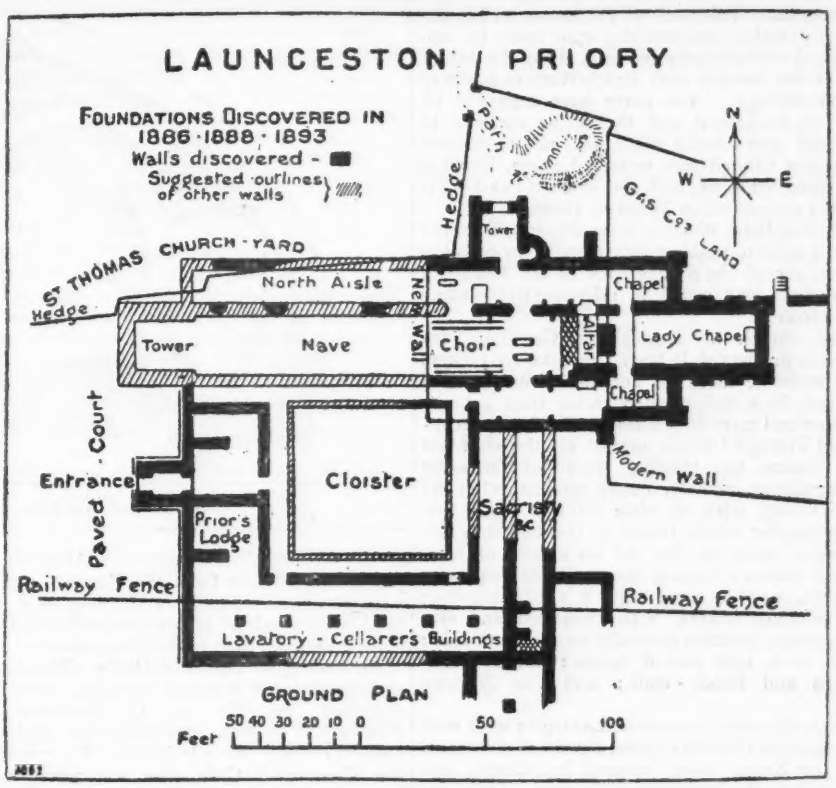
These were described and commented on by Mr. Walter de Gray Birch, F.S.A., Hon. Sec. The oldest is of Edward I.'s reign, and is the grant of a fair on the vigil and day of the Holy Trinity, and is dated at Westminster 1279. There are also some private charters of Edward III. The Corporation books date from 1368. The maces are of silver, and dated 1689 on the crowns, which are of a later period than the stems. These charters and regalia were not as well preserved as they should be, but the Mayor said the suggestions which had been made for their safer protection should be considered by the Corporation. Carriages were taken to the Roman station at Chesterton, which was very clearly explained by the Rev. T. W. Daltry, who was of the opinion that here should be sought the missing Roman station of Mediolanum. The measured distances tally very closely with the distances recorded by Antoninus in his Tenth Itinerary, and he remarked that, if Chesterton be not Mediolanum it follows that its Roman name is entirely lost, and there is no other camp left to which the name of Mediolanum will apply. The rev. gentleman furnished each member with a map and plan of the camp and a printed description, so that his remarks were the more easily followed. The drive was resumed to Heleigh Castle, where, after a very stiff climb to reach the top, Mr. Daltry read a paper upon its history. There is but little left of the castle, a few fragments of masonry here and there, some walling of what are called cellars, showing the springing of some stone groining, and a portion of a round bastion tower and the well. The castle was a Saxon stronghold in the rising in Mercia in 1067-8, afterwards the Normans probably strengthened it, until at length it was destroyed in Henry II.'s time, under the law for demolishing castles. Heleigh subsequestly passed through various hands until it became the property of the famous Henry de Audley, who erected a castle on this site, the ruins of which can now be seen. Its last appearance in military history was in January, 1644-5, when the Parliamentarian Committee sitting at Stafford, as a measure of precaution, directed its destruction.

After luncheon at the Corbet Arms Hotel, at Market Drayton, carriages were taken to the British Camp, known as "Bury Walls," which was inspected. Very little indeed is known of the history of this camp, it was probably British, occupied later by the Romans, some coins and other articles of Roman workmanship having been found there. Not far distant are the ruins of the "Red Castle," another of the strongholds of the Audleys. Mr.

Phillips, of Shrewsbury, had written a paper dealing with its history, which was read by Mr. Daltry. The keep was circular, cut in the solid rock for about 40 ft., and continued upwards in masonry. The outline of the castle was an irregular parallelogram, about 500 ft. by 300 ft. The party returned to Stoke by train from Market Drayton. At the evening meeting the papers read were on "St. Chad, the first Bishop of Lichfield," by Miss Edith Bradley; on "The Charters of the Abbey of Burton-on-Trent," by Mr. de Gray Birch, Hon. Secretary; "On Ancient Tillage," by Mr. Thos Blashill; and "A Bit of Lost History," by the Rev. W. Beresford.

Friday was another very long day, but the weather was more settled, though dull, and the party, under the guidance of Mr. Wells Bladen, the leader for the day, left Stoke by train at 8.10 for Uttoxeter, whence carriages were taken for the drive to Chartley Castle, which was very clearly described by Mr. A. Scrivener. Before the Conquest there is no record of the existence of Chartley. Mr. Scrivener had prepared a plan from actual survey and measurement, showing a mound, 60 ft. in diameter, to the west of the earthworks, which had a ditch from 80 to 100 ft. wide. This mound was undoubtedly artificial. Fifteen feet below this mound, and to the east, was a plateau of horse-shoe form, also with a ditch; and again to the east was another plateau of a somewhat circular form, likewise having a ditch. These earlier earthworks were taken advantage of when the castle was built early in the thirteenth century by the Earl of Chester. The remains of the castle are considerable, and consist of the lower portion of a circular keep, a curtain wall of considerable height running eastwards, in which are the remains of five towers with walls which were about 12 ft. in thickness, pierced with arrow slits. Between two of the towers, which stand closer together than the others, was the entrance gateway. The castle is rapidly falling into utter ruin, from want of a little careful preservation of the masonry, some parts of which are in a dangerous condition. The castle and estate of Chartley passed from the Earls of Chester to the Ferrers family and from them to the Devereux in 1450 by marriage. It was in the manor house at the foot of the hill close to the castle, that Mary of Scotland was confined for sometime, when being removed from Tutbury to Fotheringhay.

Leaving the castle, the company drove back to Uttoxeter for luncheon, and afterwards took the train for Alton and inspected the grounds of Lord Shrewsbury's house of Alton Towers. The party here divided for a time, one part going with Mr. Lynam to visit the ancient British earthwork. On reassembling at the entrance gateway, the company took carriages for the drive to the ancient Abbey of Croxden. This abbey is a typical example of a Cistercian monastery of a late date, and is grand even in its ruin from the simplicity of its architecture and its beauty of ornamentation. The effect of the lofty lancet windows in the western gable, and elaborately moulded doorway beneath, could not fail to be appreciated. It is particularly interesting because showing a departure from the severe plainness of the earlier buildings of this order of monks. Taking up a position beside the west doorway, Mr. Lynam, with the aid of a large plan, explained the arrangements of the monastery previous to conducting the party round the ruins. The building dates from the early part of the thirteenth century. The whole of the abbey lands, he said, were once enclosed by a lofty wall, some portions of which remained. The cloisters were to the south of the church, the chapter-house being on the east of them, the entrance doorway and side arches still standing. This part of the cloisters had been vaulted, the springing stones still remaining; the other alleys had had lean-to roofs of wood. The plan of the abbey and conventual buildings can very easily be traced. Remains also exist of the abbot's house and infirmary. The high road now runs through the ruins over the site of the high altar of the church. Several stone coffins yet lie sunk below the surface of the ground in what is now an orchard. After partaking of afternoon tea at the Abbey Farm, by the kind invitation of Mr. and Mrs. Wood, the party re-entered the carriages for the drive to Checkley. A short time only could be devoted to the inspection of the three pre-Norman crosses in the churchyard; they stand together, and are similar in design to others in the county, having square-sided stems with panels and interlaced work. The rector, the Rev. E. Philip, said they represented the establishment of a religious or preaching station on that spot of a much older



date than the time of the church. It is said that St. Bertram, passing on his way to Stafford, stayed at Checkley, and had them erected, and as time went on a cemetery was formed around them, and they became the nucleus from which the present church had risen. The church is an interesting structure of Norman foundation, having been built by a Norman knight named Bec. The present building is of later date, and consists of a nave of four bays. The chancel is very long, and has four large windows on each side and a five-light east window, all of the Early Decorated period, and without foliation. The font is circular and Norman. The stalls are old and Late Decorated. There is an interesting monument to the family of Foljambe, date 1560. The last Abbot of Croxden, Thomas Chawner, is said to be buried here. The party had now to hasten away to catch the train at Totmanslow station for Stoke. At the evening meeting, Mr. C. H. Compton, V.P., read an interesting paper on Croxden Abbey, and Mr. de Gray Birch mentioned that in the British Museum there were two MSS. which contained the exact dates on which all Cistercian abbeys were founded. Reference was made to the dangerous neglect of the ruins, both of the abbey and of Chartley Castle, which, if not speedily averted, would ensure their entire destruction. Dr. Phené next read a lengthy and learned paper on "Some hitherto little-noticed Earthworks in Central Britain." There was also a third paper on "Borough Seals and Maces," by Mr. J. W. Tonks. The Chairman, Mr. Lynam, announced that, owing to the great distance to be covered in the programme for Saturday, it had been decided to abandon the proposed excursion, and to have a quiet day either at the Wedgwood Institute or in visiting some of the pottery and tile works in the town, and that the concluding meeting of the Congress would be held at his house, The Quarry, Hartshill, in the afternoon.

On Saturday, at 3 o'clock, the members and friends and the local committee assembled in the breezy and spacious garden at Mr. Lynam's house at Hartshill, where, under a large open-timbered roof which had once formed part of a church, the concluding business of the Congress was transacted, Mr. Blashill, V.P., presiding. After partaking of afternoon tea, a hearty vote of thanks was accorded to Mr. Lynam, and the company separated.

PROPOSED ARCHITECTURAL SOCIETY, PLYMOUTH AND DEVONPORT.—An effort is being made in Plymouth and Devonport to form a local Architectural Society on the suggestion of Mr. E. M. Leest, of Devonport. A meeting will be held at an early date to consider the scheme.

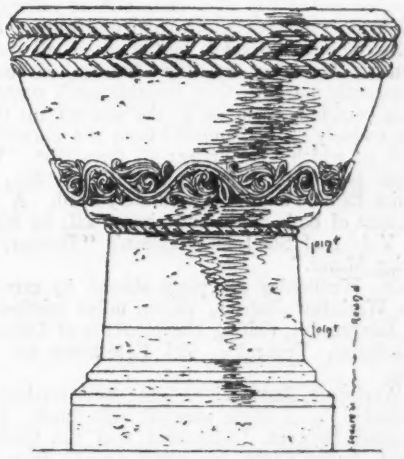
GATES, WESTON PARK, SHEFFIELD. — The entrance to the Weston Park, Sheffield, is being provided with wrought-iron ornamental gates from the Art Metal Works of Thos. Brawn & Co., Birmingham.

THE CAMBRIAN ARCHÆOLOGICAL ASSOCIATION AT LAUNCESTON.

THIS year the Cambrian Archæological Association departed from their usual custom of holding their annual meeting in Wales, partly because they had received a very cordial invitation from the Royal Institution of Cornwall to visit Launceston, and partly because they were anxious to have an opportunity of seeing the antiquities of Cornwall, or West Wales, as it was once called, which are so nearly allied to those of the Principality, more especially the pre-historic remains and the early Christian monuments.

About fifty members arrived at Launceston on the afternoon of Monday, August 12, and took up their quarters at the White Hart Hotel for the week. Although this hostelry is not of the twelfth century, it possesses a real Norman doorway, brought from the ancient Priory.

The situation of the town of Launceston is a very charming one, on the south side of the valley of the Kensey, a tributary of the Tamar. The great double concentric drum tower of the castle stands up high above everything on the top of a



Font in St. Stephen's Church, Launceston.

lofty rock. The market-place is on the comparatively level ground between the castle and the sloping hill-side behind, and the remainder of the town straggles down a marvellously steep incline to the bottom of the valley towards St. Stephen's, which is on the opposite side of the Kensey. Some of the old houses, faced with large green slates, are extremely picturesque, and in many respects not unlike those in Brittany. The chief beauty of Launceston is that the rural features have not been entirely obscured by bricks and mortar, nor, we are thankful to say, has the builder of Queen Anne villa residences yet desecrated this quiet spot with his unwelcome presence.

The first excursion on Tuesday, August 13, was to Tintagel, nineteen miles west of

Launceston. This part of the coast, which was formerly rather inaccessible, can now be approached with comparative ease, since the extension of the London and South-Western Railway to Wadebridge. The party were conveyed by train to Camelford, and thence by carriage to Tintagel, stops being made *en route* to inspect Lanteglos Church and inscribed stone, Worthyvale inscribed stone, and the inscribed and ornamented cross-shaft on Waterpit Down.

At Camelford, which is some distance from the railway-station, nothing was seen to interest the visitors except the weathercock of the town-hall surmounted by a camel, in reference to the name of the town.

The church at Lanteglos-by-Camelford (so called to distinguish it from Lanteglos-by-Fowey) is remarkable more on account of its secluded situation in a well-wooded valley than for any architectural merit it possesses. With the exception of Tintagel Church, almost all the churches seen during the meeting presented the same characteristics, namely, a nave and chancel of the same width, with an aisle on the south side extending the whole length of the building, and separated from the rest by an arcade of four-centred arches springing from monolithic granite columns, and in some cases a north transept; lofty western towers, with pinnacled and embattled tops, porches generally on the south side; cradle roofs with carved bosses; carved rood-screens and bench-ends; and fine Norman fonts.

In the Rectory grounds at Lanteglos were seen three granite Cornish crosses, devoid of ornament, and the Saxon pillar* erected by Ælselth and Genereth to the memory of Ælwyne. This, and the other monuments of a similar kind seen during the day, were ably described by the Rev. W. Iago, who made his remarks more easily understood by placing rubbings of the inscriptions side by side with the stones, thus enabling letters which were almost invisible on the stone to be read with ease.

A pleasant afternoon was spent in examining Tintagel Church and Castle. The former is a cruciform structure, preserving most of its original Norman features. The stiles at the entrances of the churchyard here and elsewhere in the district are rather peculiar, and consist of a passage paved with a sort of gridiron arrangement of granite bars at intervals of about seven inches apart, with a space between so as to catch and trip up any animals attempting to stray into the churchyard. At Tintagel the grid-stiles are double, with a block of masonry in the centre to rest coffins upon at funerals. On the top of one of these blocks the Rev. W. Iago discovered some years ago a Roman inscribed stone of the Emperor Licinius, now placed within the church.

Tintagel Castle owes its celebrity principally to its being the traditional birthplace of King Arthur, and to its extraordinarily wild situation, perched on the top of a slate cliff of variegated colour, and contorted formation undermined and hollowed out into caves by the sea in all directions. The walls of the fortress, although apparently not older than the thirteenth century, have been honeycombed by the weather till they can scarcely be distinguished from the crumbling rock of which they appear to form part. The castle is entirely devoid of mouldings, &c., by which its date might be accurately fixed. A full account of both castle and church will be found in Vol. 1 of Sir John Maclean's "Deanery of Trigg Minor."

On Wednesday the party started by carriage for Warbstow Barrow, eleven miles north-west of Launceston, visiting the churches of Lancast, Warbstow, Treneglos, and Egloskerry on the way.

Warbstow Barrow is a large oval earthwork, defended by a triple rampart and ditch. It is situated between Launceston and the Cornish coast, being about five miles distant from the latter. Its height above sea-level is 800 ft., and the strategical position between the head of the valley of the Tamar and the coast must have been an important one in early times.

We have already described the general style of the churches in the Launceston district, most of which are built of granite, and have been entirely remodelled in Perpendicular times. Although there is a good deal of sameness in their architecture, yet there are hardly any of them that do not possess some detail or object deserving of notice.

The fonts at Warbstow and at Laneast are almost identical, and of the same kind as those

* The Saxon word used in the inscription is *sybstel*, which Mr. Iago translated as *family pillar*, the latter syllable being allied to the Greek στηλη.

Sculptured Norman Tympanum at Treneglos, Cornwall.

at St. Thomas', Launceston, Alternon, and Jacobstow. These fonts are Norman, and have a large rosette on each of the four sides of the bowl, with a pair of serpents twined round it and human heads at each of the four corners.

At Treneglos and Egloskerry Churches are some sculptured Norman tympana, which were described by Mr. A. G. Langdon. An Elizabethan helmet preserved in Egloskerry Church excited the admiration of a member of the Kernoozer's Club who was amongst those present. He said that a dealer would probably not offer less than 60*l.* for it, and he therefore recommended that it should be better taken care of. He thought the best way of dealing with it was to hang it on a wrought-iron bracket, as had been done at Llanidloes, Llantrythid, and elsewhere, at his suggestion.

The entire day on Thursday was given up to the prehistoric remains on Dartmoor, which were explained to the members by the Rev. S. Baring Gould and Mr. R. Burnard, of Plymouth. The latter gentleman was also kind enough to provide the party with luncheon in a region so wild that it would have been difficult otherwise to procure any refreshment had Mr. Burnard not thoughtfully had it sent all the way from Plymouth. Dartmoor was approached from Tavistock, and the furthest point reached was Grimspound, nearly 30 miles to the eastward.

The megalithic remains on Dartmoor are tolerably well known to antiquaries. The only new light that has been thrown on them is by means of the excavations made by the Rev. S. Baring Gould and Mr. R. Burnard for the Dartmoor Exploration Committee of the Devonshire Association for the Advancement of Science. The general results they have arrived at are that the hut circles were undoubtedly the dwelling-places of a neolithic people, in so low a stage of civilisation that they seem to have been unacquainted with the use of pottery, or spinning gear, or querns for grinding corn. It appears probable that the stone circles, alignments, cist-vaens, menhîrs, and other sepulchral remains were the work of the same race.

The only effort at primitive architecture seen on Dartmoor, besides the rude stone huts and the walls of Grimspound, was the cyclopean bridge at Post Bridge. This, however, is more likely to be Mediæval than prehistoric. It has three spans, the centre one of 10 ft. and the two others of 12 ft., the width of the piers being 2 ft. The largest slab of granite used in the construction of the bridge measures 15 ft. long by 7 ft. wide by 1 ft. thick.

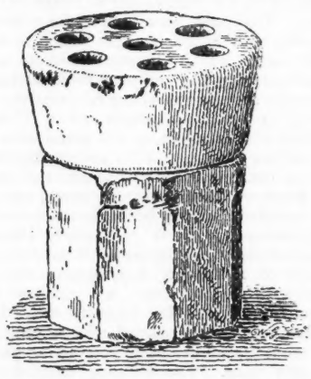
The excursion on Friday was by carriage to the Cheesewring, nine miles south-west of Launceston, stops being made at Northhill, Lewannick, and Southhill Churches.

The Cheesewring is a granite tor of natural formation, resembling five enormous cheese-shaped blocks, carefully piled up on the top of three smaller ones by some Cornish giant of old. Geologists maintain that the whole is really one mass of rock, and its remarkable appearance is due solely to the disintegrating effect of the weather. Whether the Cheesewring ever served as a rock idol to the ancient inhabitants, as Borlase asserts, it would be difficult to prove. At any rate, it is in the immediate vicinity of a large fort with walls of rubble stonework, like those of Carn Goch in Carmarthenshire, which crowns the summit of the hill, and the Hurlers stone circles and the Trethevy Cromlech are not far off. In a cist-vaen, still visible within a cairn, between the Cheesewring and the Hurlers was found in 1837 a gold cup, probably belonging to the Bronze Age, of the bullion value of 10*l.*

Immediately outside the rampart of the stone fort above the Cheesewring is a large natural block of granite hollowed out by the weather into a rude seat called the Druid's Chair. It is said that whoever sits in it is destined shortly either to become a poet or go mad—in fact, the Laureateship or Colney Hatch! The whole neighbourhood of the Cheesewring has been completely spoiled by quarrying and mining operations.

Just below the Cheesewring is a rude hut like a cromlech, formed of large slabs of granite, which goes by the name of *Daniel Gumb's House*. It was inhabited in the last century by an eccentric individual who lived here, and brought up a family in a state of primæval savagery. One of the jambs of the doorway is inscribed D. Gumb, 1735, and on the top of the roofing slab is an incised figure of the diagram of Euclid's forty-seventh proposition of the first book, but with the sides of the right-angle produced so as to form two sides of a fourth square in which the square on the hypothenuse is inscribed. The length of the sides of the squares are 6, 8, 10, and 14 in. respectively. The proportions of the three sides right-angled triangle are thus 3, 4, and 5, giving the well-known method for setting out a right-angle.

At Lewannick Church are the only two Ogam inscribed stones yet found in Cornwall. The



Cresset Stone in Lewannick Church.

discoverers, Mr. A. G. Langdon and Mr. F. H. Nicholls, were both present, and the former delivered an interesting discourse on the inscriptions. Lewannick Church is dedicated to St. Martin, a Gaulish Saint.

At Southill Church is another very early inscribed stone bearing the Chi-Rho monogram of Christ upon it. This, and the dedication of the church to St. Samson (probably of Dol, in Brittany), indicates that there was a Christian establishment at Southill, possibly in the fifth or sixth centuries.

The Norman font at Southill was one of the most perfect seen during the meeting. It is of the same type as the one at Bodmin, with four shafts at the corners terminating in human heads at the top. The hemispherical bowl is decorated with a conventional tree, a dragon, and a pair of beasts, repeated on the two opposite sides. It is made of a beautiful white stone.

The font at Lewannick is octagonal, and exhibits a great variety of geometrical incised patterns on each of the panels. The cresset stone at Lewannick is also a very rare object.

The morning of Saturday was devoted

the castle and churches of Launceston, Mr. Otho B. Peter, F.R.I B.A., acting as guide. For a description of these we must refer our readers to Mr. Peter's "History of Launceston." At St. Stephen's Church are two slabs of sculpture built into the east wall of the chancel, one representing Christ holding a book and giving the benediction, and the other the Virgin and Child. The style is very archaic, and has a greater affinity with the art of the Saxon and Carlovingian ivories than with Norman sculpture.

At the evening meeting on Friday a very fine series of drawings of Cornish crosses was exhibited by Mr. A. G. Langdon.

The programme for the Launceston meeting was arranged by Mr. J. Romilly Allen and Mr. A. G. Langdon, and admirably carried out by Mr. Otho B. Peter and Mr. T. C. Reed. The only occasion on which the time-tables drawn up for each day were not rigidly adhered to was on the Cheesewring excursion, when the Trethevy Cromlech was put in as an extra, with the natural result that the party arrived home too late for dinner, and the evening meeting had to be postponed. The weather was exceptionally fine throughout the week, and the members returned home with a lively recollection of the hearty hospitality of the West of England, the ever-changing beauty of its scenery, and the extraordinary interest of its antiquities.

Illustrations.

SKETCHES ON THE ROUTE OF THE ARCHITECTURAL ASSOCIATION EXCURSION.

OUR illustrations this week are from sketches prepared by Mr. S. K. Greenslade, and are given in connexion with the annual excursion of the Architectural Association. Some of the buildings illustrated were referred to in our descriptive report of the excursion last week. The other buildings illustrated are commented on in another page in our concluding account of the excursion.

Correspondence.

To the Editor of THE BUILDER.

REPRESENTATION OF ARCHITECTURE AT THE ROYAL ACADEMY.

SIR,—Illness has prevented me from answering your letter before.

I think it is of the utmost importance that the London public should have the chance of seeing accurate representations of all the good architecture that has been completed in the country since the preceding year. Even with so small a space as that at the R.A.'s disposal, I think it might be done by only admitting photographs on which a small plan is shown, and that no other works be admitted into the Architectural Room unless there were space for a model or two of buildings just completed. I recommend photographs taken from the building itself at the level of the footpath, so that the actual appearance of the building, from the place it is usually seen, may be ensured.

There is ample space on the three walls of the hall on the level of the galleries, which is now left blank, to hang such competition drawings and designs for buildings, and such exteriors and interiors as owe much of their charm to colour, as are sufficient, with the Architectural Room, to constitute a proper architectural exhibition. If there be sufficient space left, such drawings as those which usually half fill the Architectural Room might be hung too. G. AITCHISON.

CLEEVE CHURCH, GLOUCESTERSHIRE.

SIR,—In the report of the Architectural Association Excursion, given in your last issue, there is a description of Cleeve Church. In a note on the fine west *gallery*, the writer says:—"We sincerely hope that the mad idea now entertained of shifting its position to a meaningless and utterly inappropriate location in the north aisle will never be realised."

The repairs, &c., of the church have been, for the last two or three years, in my hands. At the first meeting of the Restoration Committee, the point most urgently pressed was the removal of this gallery. I stopped the idea *for the time* by saying that if it were touched I should retire, and the Committee must find another architect. In all probability the church will be under my superintendence for two or three years more. After that, very likely the gallery will disappear, and the "vandal architect" will no doubt get the blame, as he often does for what he had no hand in. HENRY PROTHERO.

P.S.—I am inclined to think that the alternate piers of the nave were removed in 1700, but that the gallery is some eighty years earlier than that date. There was once one like it in St. Mary's, Cheltenham.

"ON COMMON COLOURS."

SIR,—I have just seen Mr. Laurie's article in the *Builder* on the above subject, and as it appears to me a very good example of the tendency of such articles on colour to "make confusion worse confounded" by blaming others for not doing something which is, after all, left undefined, I ask permission to say a few words by way of comment.

Mr. Laurie is very angry that London decorators do not use "the patent white leads." It is "simply the outcome of ignorance" that they do not do so. But whose or what "patent white lead" is it that has gathered to itself all the virtues and none of the vices of the ordinary best white lead? Mr. Laurie stops short at the critical moment, and only refers us to "analytical chemists" and the "light of science," and goes on to say that every industry upon which that light has been turned "has enormously developed and improved"; and he instances "the art of dyeing," of all others, as "revolutionised by the work of the scientific chemist." It has, indeed; so much so as to constitute rather a warning than an example. I do not think Mr. Laurie's instance will greatly encourage decorators to appeal to the scientific chemist; and it is certainly remarkable that the strongest argument against doing so is to be found in the early part of his article, where the ingenious person in question is shown not only as inventing the aniline dyes, (which have so developed and improved the art of dyeing), but as applying these dyes to pigments. As far as my own experience goes, the only absolutely certain thing about the consultation of the analytical chemist is *the fee*.

Mr. Laurie will be glad to know that some attempts have been made, under the auspices of the Painters' Company, to impart a little practical knowledge in the simpler chemical properties of pigments, in the technical classes for painters. It would be futile in such classes to offer more than very elementary facts; but such facts at least put the intelligent mind on the alert. It is, however, worse than useless to deal in vague generalities. If Mr. Laurie has some definite preparation to recommend in place of white-lead, why not say so?

I must conclude by a word of apology and excuse. Mr. Laurie mentions that his letter, addressed to the President of the Conference on Technical Education for Painters (held about two years ago) was never acknowledged. This was a serious oversight, which he will forgive on learning that the President was taken seriously ill a day or so before the first meeting, so did not preside. He was

J. D. CRACE.

COMPETITIONS.

INTERMEDIATE SCHOOL, PEMBROKE.—Fifteen architects have sent in plans in the competition for the Pembroke Intermediate School. The Governors have so far made no selection, and it is probable that no definite decision will be arrived at before the next regular meeting of the Governing Body, which will be held on September 11 next.

SCHOOLS, GUERNSEY.—The St. Piesse-du-Bas (Guernsey) Parochial Committee have selected the designs sent in by Mr. Frank Whitmore, architect, Chelmsford, for these new schools, and the same have been approved by the States Committee.

DURHAM COUNTY BUILDINGS COMPETITION.

THE following gentlemen, who were competitors in the Durham County Buildings Competition, have signified their intention of signing the protest addressed to the Durham Council, a copy of which we published last week. The Hon. Secretaries to the competitors, Messrs. Philip Tree and Ivor Price, will be glad if all our readers who were competitors will send them their names and mottoes without delay, so that the list may be completed and forwarded as soon as possible.

HENRY T. HARE.
GIBSON & RUSSELL.
TREADWELL & MARTIN.
THOMAS DAVIDSON.
PRENTICE & BOLTON.
NIVEN & WIGGLESWORTH.
MALCOLM STARK & ROWNTREE.
W. A. PITE & GERALD HORSLEY.
GROLL & MINTY.
H. W. WILLS.
CLARK & HUTCHINSON.
PHILIP TREE & IVOR PRICE.
ARNOLD S. NICHOLSON.
H. R. APPELBEE.

The Student's Column.

METALS USED IN BUILDING.—VIII.

ALUMINIUM—(*continued*).

A GREAT deal of misconception exists as to the special properties of the metal aluminium, and much erroneous data has been published concerning it from time to time. One account speaks of it as having "no strength," and that it is as "soft as lead"; on the other hand, "castles in the air" are too frequently built of the metal. It may be well, therefore, to give the following general summary of its properties, so far as concerns our present inquiry, compiled from various sources, but based on the researches* of Mr. Alfred E. Hunt. The properties of aluminium are:—

1. Its relative lightness. The specific gravity of pure aluminium in the cast state is 2·58; when subjected to great pressure, as in being made into thin sheets under chilled rolls, its specific gravity increases to 2·7. But even this is very light for a metallic substance. For instance, if we take cast aluminium as the unit, wrought-iron is 2·90 times heavier, structural steel 2 95 times, copper 3·60 times, brass 3·45 times, nickel 3·50 times, lead, 4·80 times, gold 7·70 times, and platinum 8·60 times heavier. The majority of the woods used for structural purposes are about one-third as heavy as platinum.

2 Its ability to resist corrosion as compared with many other metals—aluminium not being acted upon at all by sulphur fumes, and being very much more slowly affected by moist atmosphere than most metals. The presence of much silicon in aluminium materially detracts from its power to withstand corrosion due to atmospheric influences; metal with from 4 to 5 per cent. of silicon very soon collects a thick coating of oxide upon it. Pure aluminium is practically not acted upon by either boiling water or steam.

3. Its extreme malleability: pure aluminium is only exceeded by gold and silver in this respect. It is very ductile; sheets of it are rolled down to ·0005 in. in thickness, and may be beaten almost as thin as gold leaf.

4. Its easy casting qualities.

5. Its high specific heat and heat conductivity.

6. Its relatively-high electrical conductivity; pure aluminium has no polarity and the metal in the market is absolutely non-magnetic.

7. Its high tensile strength and elasticity, when weight for weight of the metal is compared with other metals.

8. The valuable alloys it makes with other metals.

The physical properties of aluminium embraced in the paragraphs headed 5, 6 and 7, will be more conveniently dealt with when treating of the strength and conductivity of metals in general. In regard to paragraph 8, that will be considered under alloys.

So much for the leading properties of the metal; let us now see how they are applied. On the score of its lightness aluminium is finding new uses almost daily. It is employed in the reciprocal parts of many forms of machinery where the momentum is to be overcome; also for valves, air brakes, and the like. In view of the circumstance that it is not acted upon by steam or boiling water it is being used to good advantage for "packing" in steam connexions. As yet, aluminium sheeting has not been extensively employed for roofing purposes, which circumstance is no doubt due to its price being somewhat higher than copper or "lead-compo"; every year sees it getting cheaper and cheaper, however, and there is a general consensus of opinion that the date is not far distant when the metal will be very largely used for roofing. Sea water has but little effect on aluminium, and in this respect the metal behaves much better than copper; it has been ascertained, however, that barnacles are extremely fond of it, and the metal would have to be specially prepared to enable it to be placed to the best advantage in sheathing for ships. For structural purposes under water it has been successfully used, and Mr. Hunt remarks (*Op. cit.*, p. 243) that it is standing the effects of time and corrosion much better than wrought-iron or steel, or even cast-iron under similar conditions. Aluminium is being employed in the United States in connexion with masonry foundations, in consequence of its non-corroding properties. In view of the fact that it stands so high in the series as an electro-positive metal, and that when in contact with other metals it may be subjected to corrosive

* "Mineral Resources of the United States for 1892," p. 241; and many other publications.

solutions, and galvanic action be thereby established at the expense of the aluminium, it is absolutely necessary to avoid such contacts in designing work.

Aluminium leaf, beaten extremely thin, has been much used for decorative purposes during the past few years, and from its close resemblance to silver foil has unquestionably been surreptitiously substituted largely for the latter; the student is specially cautioned as to this. The difference is easily made out. Thickness for thickness and size for size, the silver foil is nearly four times heavier than the aluminium foil. The respective specific gravities are thus, of course, widely different. Notable examples of the use of aluminium-leaf for decorative purposes may be seen in many leading buildings on the Atlantic slope of the United States, especially in New York; and it may be observed that the "Transportation" building at the World's Fair, Chicago, was decorated with it. Practically, all the minor artistic efforts in that building were made upon a base of thin beaten aluminium-foil. Oil-colours can be safely applied to its surface. In Germany, aluminium is rolled into tubes, by what is known as the "Mannesmann process," this branch of the industry alone being on an extensive scale.

The use of the metal in casting various objects constitutes one of the largest demands for it on the market, but we need not go into that phase of the subject. By reason of its non-magnetic properties it will in future be greatly employed for the manufacture of certain electrical appliances; already the consumption is not small on this head. In reference to special pieces for constructional work it may be noted that angles, plates, and channels and other sections have recently been placed on the market. It is rather an open metal for its texture, so that an increase in thickness over the ordinary formulæ should be given in designing such things as cylinders, or where much pressure would be brought to bear upon it. Aluminium slate pencils are gradually superseding ordinary forms of those useful articles, especially in America. As a matter of general interest we may also note the employment of the metal for sounding-boards and stringed musical instruments. The American authority alluded to is responsible for the following statement in reference thereto, which, however, we are not able to control. He remarks that aluminium produces a more sonorous and pleasing tone than the wooden ones in common use. It differs from other metals in the character of its "metallic" sound. "There is an elasticity capable of sympathetic vibrations uniformly throughout a wide range of tone pitch with the metal, besides the other qualities of incombustibility, impermeability to moisture, and comparative freedom from liability to injury, such as splitting, which renders it far superior to wood for sounding-boards."

We may now consider the value of aluminium ores other than in the production of the metal. Bauxite is used in the manufacture of various kinds of paper, is essential in certain systems of deodorising sewage, in fixing the colours of earthenware baths and the like, whilst firebricks of a highly refractory nature are made from it, and it yields good alum, though this latter is prepared mostly from shales and alumstone. Cryolite is employed for making soda and alumina salts, as well as in the manufacture of a white porcellanous glass (Rutley). Wavellite, hydrous phosphate of alumina, when heated with sulphuric acid gives off fumes of hydrofluoric acid, which is used in etching glass, &c. In reference to corundum and emery, when ground and sifted the powder is extensively used for polishing hard substances, as in emery paper, emery wheels, and so forth.

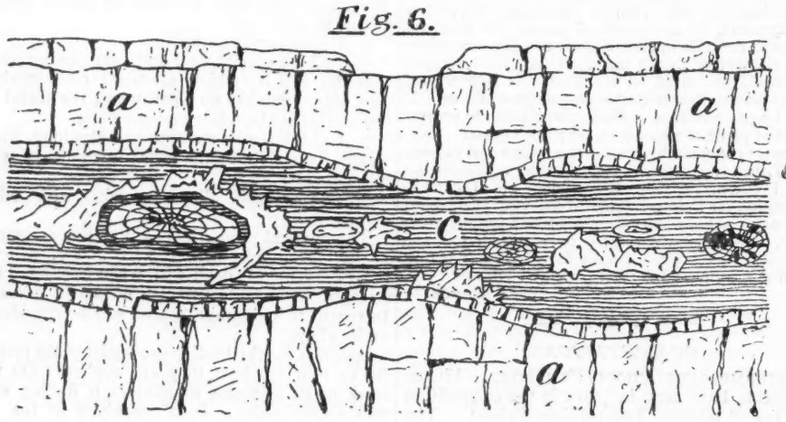
MAGNESIUM.

This is barely worth mentioning in connexion with building, its only use for us being in the manufacture of screws for certain purposes. The threads made of this metal are sharper and more exact, as a rule, than those of aluminium. It is a silver-white substance and burns with a dazzling white light. Magnesium is not found in a native condition, but is procured artificially from the chloride. It does not oxidise in dry air. Magnesite, the carbonate, is usually associated with serpentine.

BARIUM.

Barytes and *Witherite* are the chief sources of this metal. The former, known also as heavy spar, is sulphate of baryta (baryta = 65 per cent.), and occurs in rhombic prismatic crystals, or massive, granular, and stalactitic. It is mostly colourless, or of a brownish tint. Barytes is found in many mining districts, and is usually associated with galena and other metallic ores. Derbyshire, Staffordshire, Cumberland, and Cornwall have yielded large quantities of the mineral. Its principal use is as a pigment. In the first-mentioned county the variety of heavy spar in requisition is the amorphous, or earthy, form, known as "caulk"; the crystalline barytes called "boulder," or tush," is of less value, and when of a red tinge, as often happens, is rejected altogether. "Caulk" is used in the manufacture of white paint; the various kinds are ground very fine by being passed through successive mills, and are then allowed to settle; it is then bleached, washed, cut up into cakes, and dried. At many of the mines the only work now being done, and that on a small scale, is the picking and washing out of "caulk" from the old hillocks. The following diagram* (fig. 6) will be of interest as showing the manner in which barytes occurs in Derbyshire.

Fig. 6.



Section of mineral vein with barytes and fluor spar, Derbyshire (Blue John Mine, Castleton).
a = Limestone. *b* = Blue fluor spar. *c* = Mixture of clay, yellow fluor spar, and barytes.

Witherite crystallises in the rhombic system, is white or yellowish-grey in colour, its chemical composition being carbonate of baryta (baryta 77 per cent.). A white used in water-colour painting is prepared from this mineral.

In addition to its use in making up paints, the compounds of baryta are employed for the adulteration of white lead, though it renders the lead pigment more permanent, as by diminishing the quantity of carbonate of lead the tendency for the paint to sulphurise is lessened.

GENERAL BUILDING NEWS.

ASYLUM BUILDINGS, GARTLOCH.—On the invitation of the City of Glasgow District Lunacy Board, the members of the Glasgow City Parish Council visited, on the 8th inst., the new asylum buildings in course of construction at Gartloch. The pavilion system of arrangement has been adopted, and the buildings are divided into two distinct parts—asylum and hospital. Four blocks are given off for the asylum, the accommodation for the male and female patients being separate, and each block is connected by means of corridors with the central or administrative department. This department consists of a large dining-hall, kitchen, sculleries, dairy, general stores, and over the dining-hall there is a large recreation-hall. The official block is situated to the north and is flanked by two towers rising to the height of 130 ft. from the ground. In this block are situated the board-room, doctors' room, waiting-room, &c., and sleeping accommodation for attendants. Each block is divided into two wards, with dormitories above. Workshops are placed on the male side, while on the female side there is a laundry. In the hospital block accommodation is given for five classes of patients, there being wards for observation, for the old and infirm, for acute and noisy, for sick and invalid, and for infectious cases. In addition to the asylum, a chapel and a mortuary have been built, and a large farm is in course of erection. Messrs. J. Thomson & R. D. Sandilands are the architects.

CHURCH, INVERSNAID, STIRLING.—A church has just been erected near Inversnaid, in the northern portion of the Parish of Buchanan. The church is built from plans prepared by Mr. Thomas Leadbetter, architect, Edinburgh. The stone—blue whinstone—was quarried from the rock in the immediate neighbourhood.

RESTORATION OF STOKE PRIOR PARISH CHURCH, WORCESTERSHIRE.—The old parish church of Stoke Prior has just been restored. Mr. J. L. Pearson, R.A., prepared the plans, which have been carried out by Messrs. Cornish & Gaymer, of North Walsham. The church, says the *Birmingham Gazette*, consists of a chancel 43 ft. long and 13 ft. wide, a nave 57 ft. long and 19 ft. wide, north and short south aisle, with chapels at the east end of each, dedicated to St. Catharine and St. Mary, a small vestry or sacristy east of St. Catharine's Chapel, having a room or cell over it; a new vestry, with a heating vault beneath it on the north side, and a new porch on the south side. A considerable portion of the church is of early twelfth-century work. Most of the walls are of that period, but windows of later date have been inserted from time to time. In the sacristy there is an old oak chest, hewn out of the solid trunk of a tree. The room above has given rise to many conjectures. The doorway is in the wall on the west side of it, but there is no means of access to it. It is generally supposed to be a cell. Towards the west of the chancel there are arches opening north and south into the two chapels. St. Catharine's, on the north, contains a dormer window of Early Decorated date, also a small Norman window about 22 in. in height. This, as well as the steps up to the rood-loft, have just been opened out, having been formerly built up in the wall. The nave has five bays on the north side of simple Norman character of an early date. The columns, capitals, and bases are circular, and the arches are in two orders. The bases have been renewed, except that of one respond. The interior wall of the north aisle has been rebuilt, the old stones being used as far as they would go. The remains of a Norman doorway were found in this wall, the door-step being 14 in. below the modern level of the floor; while the Early English level, to which the floor has been restored, was 9 in. below. A large stone, with two crosses chiselled on the surface, exhibits what are probably the original consecration crosses. Mr. Pearson has inserted in this wall three square-headed windows of three lights. The two arches from the nave into the short south aisle "are very fine examples of thirteenth-century work. They are of beautiful proportion, and richly moulded." "They have been often measured and used as a model, and a better one it is hardly possible to conceive." To the west of this aisle the south wall of the nave is pierced by a Norman doorway, with plain mouldings, except the hood, which is scalloped in semi-circles placed back to back. A new porch has been constructed at this doorway. It is in the Decorated style, and takes the place of a much-mutilated wooden one of fifteenth-century character. In addition to the repairs mentioned, the work of restoration includes the following items:—The whole of the old walls have been underpinned, made solid, and pointed; the spire has been covered with oak shingles, and its defective timbers replaced; the parapet of the tower has been restored; a ringing chamber has been constructed; a new vestry has been built on the north side, with a heating vault beneath; and a new porch on the south; the floors have been lowered, concreted, and relaid with blocks and tiles; the uncomfortable seats have made way for chairs; a new pulpit, heating apparatus, and lighting fittings have been provided; the provision of oak-framed doors with wrought-iron hinges, remodelling of the west end, new roofs, and ceilings throughout, the latter chiefly of panelled oak; new vane, lightning conductor, drainage, and other repairs.

CHANCEL SCREEN, DOWNHAM, CAMBRIDGE.—The ancient church of St. Leonard's, at Downham, has just received an offering in the shape of a carved oak chancel screen. It is of fifteenth-century character. There is a wide central doorway, the line of demarcation being marked by gates of hammered metal work, designed, like the screen itself, by Mr. Thomas Garrett, of Shepherd's Bush, W. The sides are panelled and traceried, and the transoms are carved. There are two open bays above these, on the north and south sides respectively of the doorway. Over again is the main cornice. The whole is surmounted by a pierced

* "The Carboniferous, &c., Rocks of North Derbyshire (Mem. Geol. Surv.), 1887," p. 162, fig. 34.

cresting. The screen is of English oak, and it has been made in the studios of Messrs. Harry Hems & Sons, at Exeter.

ALTERATIONS TO THE ROYAL SAILORS' HOME, DEVONPORT.—There has just been erected at the Royal Sailors' Home, Devonport, a Portland cement front in substitution of the old wooden structure. Messrs. Healy & Sons were the contractors for the work, which was designed by Mr. Henry George Luff, of Devonport.

RESTORATION OF CHURCH, NORTON-SUB-HAMDON, SOMERSETSHIRE.—The re-opening of the tower of St. Mary's Church, Norton-sub-Hamdon, took place recently, when the new font and peal of six bells were dedicated. The restoration was made necessary by the fire that burnt out the whole of the inside of the tower a year ago, including all the wood and lead work, the peal of bells, the clock, and a fifteenth-century screen, &c. Besides this, considerable damage was done to the roof of the church, the font, the seating, and organ. The whole of the inside work of the tower is now reinstated. Six bells are now provided in place of the old peal of five, and a clock has been obtained from Messrs. Smith & Co., of Derby. The whole of the stone-work has been repaired as needed, and four new additional detached pinnacles have been added, as originally provided for, but not put up, in the centre of each face of the tower, standing on the old gargoyles. These pinnacles are a gift of the Ham Hill Stone Company. The upper tower windows are now filled with new tracery panelling, in place of the old boarding. The west window is glazed with Prior's Mediæval glass to patterns designed by the architect. The window was made by Mr. Drake, of Exeter. Under the west window is the doorway, for which new oak-doors have been given by Mr. F. Nicholls. The new screen to replace the old one in the tower arch, and forming the vestry, is not yet finished. A baptistery has been formed at the west end of the south aisle. The floor of this part is of black and white marble, and the font is of Derbyshire alabaster. The ceiling of the church was very much damaged by the fire, and it has been coloured throughout under the directions of the architect by Mr. Howe, of Crewkerne. Mr. H. Wilson, of London, was the architect for the restoration. The bells have been supplied by Messrs. Warner & Co., of London. The organ has been restored by Messrs. Griffen & Stroud, of Bath. On the east and west corners of the battlements of the south side of the church new pinnacles have been placed of the same form as the intermediate existing old ones. These have been given by Mr. W. Micklewright, of Norton, foreman to Messrs. C. Trask & Sons. The whole of the lead-work for the tower has been done by Mr. Joseph Dunn, of Crewkerne.

RESTORATION OF THRYBERGH CHURCH, YORKSHIRE.—The dedication of the tower and spire of St. Leonard's Church, Thrybergh, took place on the 16th inst. The foundation stone of the work of restoration was laid in December, 1894. The architect was Mr. Hodgson Fowler, F.S.A., of Durham, and the contractor, Mr. R. Snell, of Rotherham.

INFIRMARY, LANCASTER.—The New Infirmary, Lancaster, is being erected from the designs and under the superintendence of Messrs. Austin & Paley, architects, Lancaster. The various wards and other rooms are being warmed and ventilated by means of Messrs. E. H. Shorland's Patent Manchester Grates.

SCHOOL BUILDINGS, OXFORD.—On the 12th inst. the memorial-stones of the new school in connexion with the William-street, St. Clement's, Wesleyan Chapel were laid. The new school, which is to accommodate some 150 children, will be so built as to be divided from the chapel by folding doors, so that the chapel and school may be used as one large room, being at other times divided for the purposes of classes or for smaller meetings than the ordinary Sunday services. The plans are by Mr. J. Hastings, and Mr. T. H. Kingerlee is the builder.

WORKMEN'S DWELLINGS AT PLYMOUTH.—The foundation-stone of some workmen's homes, at Prince Rock, Plymouth, was laid by the Mayor (Mr. W. Law) on the 15th inst. The architects are Messrs. Hine & Odgers, the contractor being Mr. May.

NEW CHURCH AT PONTYPRIDD.—The new Mission Church of St. John on the Graig, Pontypridd, has just been opened. The architect was Mr. Arthur O. Evans, Pontypridd.

NEW BUILDINGS, NEWPORT MUSEUM.—New buildings for the Newport (Mon.) Museum have just been opened. Messrs. Swash & Bain were the architects, and the contract was carried out by Mr. D. W. Richards. The hall has an area of 50 ft. by 30 ft., with a wide balcony running all round. It is built at right angles to the reading-room and is entered directly therefrom. There is an installation of electric light, laid on by Messrs. E. P. Allam & Co., of Cardiff and London. The hot-water apparatus was supplied by Messrs. R. Alger & Son.

CRICKET PAVILION, NEWPORT, MON.—The Newport Athletic Club recently invited designs for a pavilion, and out of half-a-dozen submitted they have selected that sent in by Messrs. Swash & Bain, architects, Newport. Tenders for the construction of the pavilion (which, it is estimated, will cost from £1,000 to £1,200) are to be invited in the course of a few days. The accepted design provides for a building in red brick, half timbered, with gables, in two stories, and a terrace sloping from the entrance to the ground, affording sitting accommodation for 400 members. The ground floor will contain the committee-room, professionals' room, kitchen, store-room, and bowlers' room (the latter for future bowling-green purposes), as well as lavatory accommodation. On the first floor there will be a dining-room, 36 ft. 6 in. by 19 ft., centrally placed, on either side of which will be the dressing-rooms, one being allotted to members and the other to visitors. At the rear of both will be lavatories and shower baths. There will also be a verandah and balcony for the use of players. The pavilion will be erected in a diagonal position in the north-west corner of the ground.

SCHOOLS, DUBLIN.—The new schools in Whitefriar-street, Dublin, have just been completed. The building is 270 ft. long by 52 ft. wide, and it is three stories high. The purchase of the site and the erection of these schools will cost 8,000*l*. On the ground floor are the galleried class-rooms to be devoted to the infants. A teachers' dressing and retiring-room is also provided. An apartment is also set apart for this purpose in the upper stories in the boys' and the girls' schools. On the second floor will be the girls' schools. Glazed partitions divide the different class-rooms. All the wood-work is of red deal, with pitch-pine panellings. The third story will be devoted to the boys. Steam-pipes will be used to heat the building, and this part of the contract was carried out by the firm of Maguire. There will be separate playgrounds for the boys and girls. The contractor is Mr. James Mackey. The late Mr. J. L. Robinson was the architect, assisted by Father Hall. Mr. O'Connor completed the plans.

SANITARY AND ENGINEERING NEWS.

SEWERAGE WORKS AT WEST BRIDGFORD, NOTTINGHAMSHIRE.—The members of the West Bridgford District Council recently visited the scene of the operations connected with the new system of drainage adopted in behalf of that portion of the parish known as the Neutral Freehold Land Association's Estates, and situate beyond Lady Bay Bridge. One portion of the main sewer, laid at Trent-boulevard, goes down the Melbourne-road and joins the Bridgford sewer near the flood-gates of the Grantham Canal. Another portion runs down Gertrude-road, a connexion being made at the south end. The two join and go under the Grantham Canal and across the fields in a southerly direction and empty into a new tank near the pumping-house. Here the sewage matter is pumped into the old rising main, and forced on to the sewage-farm some 600 yards away. The pipes are laid to convey it along the highest point of the farm, from which it gravitates on the surface of the land. Drain pipes allow the water to filter through the ground. The effluent runs into a series of dykes, which have been cleaned out and deepened, and through a syphon under the canal into the River Trent, the sediment being left to fertilise the land. There are altogether 18¾ acres for irrigation purposes on the farm. The tank, which is nearing completion, is 20 ft. long by 15 ft. wide, and 28 ft. deep below the engine-house floor level. The walls are of cement concrete, lined with blue brick in cement. The sewage passes through a wrought-iron grating before entering the tank. The pumps are of the three-throw ram type, and are manufactured by Messrs. Goddard, Massey, and Warner, of Nottingham. They will be driven by the engine now in use. The cost of the undertaking will be about 5,000*l*. The work is being carried out according to the plans of Mr. W. H. Radford, C.E., the resident engineer being Mr. W. Holloway. The contractor is Mr. Thomas Smart, of Trent Bridge.

BERLIN SHIP CANAL.—The proposals for the Berlin ship canal, to which we have frequently had occasion to refer, are now finding favour since the successful completion of the North Sea-Baltic Canal. Several routes have been suggested, but the scheme known as the Finow and Oder route seems to be the most popular. The Tegel See, at Berlin, would be adapted as an inland harbour; and Stettin would be the terminal station, on the coast. Very few locks would be required, and the cost is estimated at 10,000,000*l*. The proposed depth of the waterway is 25 ft., and the width at the water-line 190 ft. The River Oder would be canalised up to Greifenhagen, and the old Finow Canal partly used. The matter will probably now be finally decided in the coming Parliamentary Session.

JUNGFRAU RAILWAY.—At the last meeting of the technical commission which has the supervision over the construction of the Jungfrau Railway, a number of important decisions have been arrived at. The final surveys are to be made at once, and the works to be commenced in the spring. £1,000 will be given in premiums for the best proposals for working the line by electricity, designs for the rolling stock, &c. The speed to be attained on the line is to be 9 kilomètres on gradients of $\frac{15}{100}$, and 7 kilomètres on steeper inclines. The steepest gradient allowed will be $\frac{25}{100}$. The track will be 1 m. wide, and the width of the tunnels 3.20 m., and no curve on the line will have a smaller radius than 100 m.

BLACK SEA-BALTIC CANAL.—From Russia we hear that the proposed Black Sea-Baltic Canal will now probably be taken in hand. The construction of this waterway consists of cutting a new canal between the Rivers Berisina and Duena, and making the Rivers Dneiper, Duena, and Berisina navigable. The depth of the waterway is to be 29 ft., and its width is to be nowhere less than 120 ft. on the water-line. Riga and Cherson are to be the end stations of the Canal, and large harbour works will be necessary at these places. A number of inland harbours are also proposed on the route, of which the most important will probably be at Kiev. The number of locks will be small, but there will have to be at least seven expensive railway bridges and some twenty bridges for the great high-roads. The cost of the works is estimated at 20,000,000*l*, including comparatively small amounts necessary for the purchase of land. Five years will only be required for the work, as there are no difficulties for the engineers except the cutting through some treacherous bogs. When the Canal is completed, the distance between Riga and Cherson can be easily covered in seven days, at an average speed of six miles per hour.

DEEPENING THE MERSEY BAR.—According to the report on "the general state and progress of the dock-works at Liverpool and Birkenhead" for the year ending July 1, 1895, by Mr. G. F. Lyster, M.I.C.E., the depth of water on the bar has increased from 20 ft. with a channel of 1,000 ft. wide on July 1, 1894, to 23 ft. throughout a channel 1,500 ft. wide, with a leading-line through the centre of the dredged cut in which there is 24 ft. of water at extreme low water of spring tides. During the year 4,514,500 tons of sand has been removed by the two dredgers, and since operations were begun in September, 1890, 10,282,800 tons. Owing to the great length of time, 2½ hours, taken to load the dredger Brancker in certain positions on the bar, the proportion of silt pumped up with the sand being very large and passing over the side with the overflow water, the Mersey Docks and Harbour Board in February last decided to fit up the steam tender *Alarm* with an eroding or sand-disturbing apparatus, consisting of pumps and an arrangement of pipes to be lowered to the surface of the channel bed, and by means of powerful jets of water to stir up the silt that the ebb current might carry it into deep water. The work of fitting up the vessel is nearing completion.

FOREIGN AND COLONIAL.

FRANCE.—The English gallery at the Louvre has just received a new contribution in the shape of a landscape of Richard Wilson's, a painter of whom we fancy very little is known in France.——A series of hot-houses for the supply of Paris have been commenced at Boulogne-sur-Seine; they will be surrounded by an architectural façade or decoration designed by M. Formigé, while in the central space will be a fountain decorated with a medallion modelled by M. Dalou.——M. Chas. Normand has just completed, in the Batignolles quarter, a chapel in a Romano-Byzantine style, in connexion with a Franciscan convent. The chapel is richly-decorated, and beneath the nave is a subterranean chapel in the form of a crypt.——The jury of the competition opened for a Hôtel de Ville at Asniéres has awarded the first premium to M. Emanuel Garnier, a Government architect, and also Inspector of Works to the Paris, Lyons, and Mediterranean Railway Company. The second premium has been awarded to MM. Bréasson, Désert and Beutz, of Paris; and the third to MM. Tronchet and Rey, also of Paris.——M. Gaudez has just completed the model of the monument, which is to be erected at Alais, to the memory of the romancist Florian. The statue of the poet is on a pedestal which forms a fountain, and which is decorated by two bas-reliefs recalling the principal works of Florian, combined with figures of animals and rustic symbols.——The jury in the competition opened at Saint-Maixent for a monumental funeral chapel has awarded the first premium to M. Delorme, architect, of Amiens, the second to MM. Barbaud and Bauhain, of Paris; the third to M. Giraud, of Epernay.——The first premium in a competition for a monument to Carnot at Limoges, has been awarded to M. Clausade, sculptor, and M. Jules Godefroy, architect. The main design is of rectangular form; at the base is a seated figure representing France holding a flag; at the summit the statue of Carnot, "appuyé sur la constitution"; so runs the description in French, but how that incident is to be represented in sculptural form we do not gather.

GERMANY.—The Emperor has conferred a number of distinctions on the officials and engineers connected with the construction of the North Sea-Baltic Canal. The number and importance of these distinctions are quite unusual. Several distinctions have also been given in connexion with great opening ceremonies, and among these we notice one (Red Eagle, Class III.) for Herr Haller, the architect of the Hamburg Town Hall, in which the Emperor dined. The new Town Hall was illustrated in our New Year's number.——Judging from the local papers, there seems to be much dissatisfaction as to the management of the new North Sea-Baltic Canal. Instead of having some thoroughly practical men

in charge of the traffic, the present managers are apparently theorists and admirers of red tape. A change in the officials is asked for.——The authorities have now decided to postpone the erection of the new Art Exhibition Palace which has been under their consideration, and for which Professor Ende prepared some interesting plans. The old exhibition halls at the "Lehrte" Station will again be used for next year's international show, but they will be thoroughly overhauled, and probably newly roofed in, as they are not quite weather-proof.——A statue to the late Werner von Siemens will be erected in front of the Royal Technical College at Berlin. The necessary funds will be voluntarily subscribed.——The prices of building materials at Berlin have declined rapidly of late. This is ascribed to the completion of several large public works like the Houses of Parliament, and the slackness of private building enterprise. There is a serious decrease in the demand for materials ——Interesting experiments are being carried out at Berlin with some new refuse destructors. The whole of the Berlin street and house refuse will probably soon be treated by these destructors. The number of inhabitants in the area under consideration is 1,700,000, and the refuse amounts to nearly 1,000,000 cubic mètres per annum, or 1,000 cartloads per diem. —— A novel kind of permanent building exhibition is to be opened at Cologne this month. Besides having showrooms for trade exhibits there will be a library for architects, or their clients, and a large collection of plans for every class of building, with specifications and quantities complete. Architects are at liberty to refer to these gratis. The rental paid by trade exhibitors will cover all expenses.—— The delegates of the German Engineering Societies have had their annual meeting at Aix-la-Chapelle, from the 19th to 21st. The agenda-paper included a number of technical subjects for discussion, and there was the usual amount of interesting sight-seeing.——The Amalgamated German Archæological Society and historical societies will have their annual gathering at Constanz from September 15 to 18, and an elaborate programme of lectures and sight-seeing has been arranged for the delegates.

Austria.—The tombstone on Von Hansen's grave, which is an elaborate monument designed by Professors Neimann and Kundmann, has been completed. The grave is in the central churchyard at Vienna, and the tombstone is the gift of the magistrates and Municipality of the Austrian capital.——A competition has been opened for schemes for the new electric metropolitan railway lines at Vienna. The competition is practically intended for contractors, as estimates are required, with a guarantee to complete the work for the sums named.——A new museum building is to be erected at Reichenberg for what is known as the North Bohemian Industrial Collections. The cost of the building is not to exceed 50,000*l*. There will be a committee of seven assessors, and substantial premiums.——The new University buildings at Graz are now ready for occupation.——At Budapest the preparations for the Millennium Exhibition are making the town most uncomfortable during the progress of the works, as among other thoroughfares, the important Andrassy Avenue is still blocked for the construction of the underground railway. One of the new bridges over the Danube will now certainly be ready in time for the opening. This is the so-called "Zollamt" bridge, which will have three spans; the middle one measures 175 m., the two side ones 78 m.

Bavaria.—According to the *Centralblatt der Bauverwaltung*, the important office of the City Architect of Munich will be given to Herr Schwiening, who is at present City Architect at Lübeck. As Munich is to have many improvements in the course of the next few years, the post will be a very responsible one. Among the latest schemes in view is the one for the opening up of the suburb St. Anna, and the erection of a number of public buildings on the east side of the Royal Gardens. —— Besides the annual exhibition of pictures in the Crystal Palace at Munich, an exhibition arranged by the Society for Christian Art has now been opened. The exhibition includes a large number of pictures of sacred subjects, as well as some which are considered of high moral tone. Sculpture and the arts and crafts are well represented. A number of architects have also shown models or drawings of churches, altars, &c.——The buildings for the Bavarian Industrial Exhibition, which will be opened on May 15 next year, are now in course of erection. The main gallery measures about 600 ft. by 150 ft., and has a number of wings, each 150 ft. long. The machinery-hall will be 450 ft. long. We understand that a model theatre is to be erected, in which the stage machinery will be worked by electricity, according to a scheme by Herr Lautenschlager, of the Munich Opera.——The Schack Gallery at Munich, which is now again open to the public, has been renovated under the supervision of Herr Seidl.——Bayreuth is to have a casino, and a competition has been opened for the design. Visitors who attend the Wagner Opera season next year will appreciate this improvement, as the general accommodation at Bayreuth is very poor.——At Aschaffenburg a memorial fountain is to be erected in memory of King Louis I. of Bavaria. The design is a subject for competition among Bavarian architects and sculptors. The fountain is to cost 2,000*l*.——A memorial chapel is to be erected in memory of King Ludwig II. of Bavaria in the castle grounds on the Starnberg Lake. The site is near the point where the king's death occurred. The cost of the chapel will be 20,000*l*., and Herr E. Hoffmann, of Munich, has the commission. A marble sarcophagus will be placed in the crypt.

MISCELLANEOUS.

The London and Provincial Builders' Foremen's Association.—This Association held its second annual dinner on Saturday evening last, at "Ye Olde Four Swans," Waltham Cross. After the usual loyal and patriotic toasts, "The London and Provincial Builders' Foremen's Association" was given by Mr. Ackerman; and Mr. Elden, the President, in replying, heartily congratulated the Association on the strides it had made—their membership having trebled since their last dinner—and expressed the hope that in the near future their Society would be a power for good in the building trade. Their motto was "Defence, not Defiance," and he felt sure the influence they possessed, placed as they were between employers and workmen, would be always exerted to bring about more amicable relations between the two. "The Builders' Merchants of London," coupled with the name of the "Acton Brick Manufacturing Company," was responded to by Mr. Piggott, who assured the members that the merchants were fully alive to the importance of their Society, and were in thorough sympathy with its aims. Mr. Barclay proposed the health of their first secretary, Mr. Soale, who had come from Cardiff in order to be present that evening, and congratulated him on the success that had followed his exertions to found a "live organisation." Mr. Soale replied.

Sanitation in Cornwall.—In their monthly report for July the Sanitary Committee of the Cornwall County Council state that the health returns are again of a decidedly encouraging character. The general death-rate now stands at 12·34, which is 3·24 below what it was for June, and 0·24 below the corresponding period of last year. Typhoid shows a considerable increase. It has jumped up to twenty-four cases and one death from nine cases and one death for June. The principal centres are Truro Rural (ten cases) and Penzance Urban (five cases). Happily the cases have been of a mild type and without fatal consequences. In Truro Rural the Authority has at last recognised the fact that it cannot any longer afford to ignore the repeated complaints of its Medical Officer of Health, as to the contaminated condition of the water supply. A searching inquiry has been made into the matter, and the whole of the cases have been traced to wells of "impure water." These wells have been all condemned and ordered to be cleaned out and protected, pending introduction of pure water supply by means of effectual public wells or other improved schemes. At Penzance the Authority has been endeavouring to discover the exact seat of infection, but without success. There is no doubt whatever but that the Hea Moor stream is a serious source of disease. This stream has been previously complained of as being polluted with sewage. It empties itself into the sea at Chyandour, where other cases of typhoid have recently occurred.

London Water Supply.—In their report on the composition and quality of daily samples of the water supplied to London, for the month ending July 31, Mr. William Crookes, F.R.S., and Professor Dewar, F.R.S., state that the high-level of purity of the Thames-derived waters, to which they drew attention in the report for June, was sustained in July, notwithstanding the fact that turbidity and peaty colouring matters are always washed from the land into a river by heavy rain following a drought. A comparison of the chemical composition of the waters in July and in June shows that the constituents are almost identical in quantity. They have continued to examine the samples drawn from the clear water wells of the water companies at their works, and from the unfiltered river water. The unfiltered Thames water contained an average of 3,425, and the filtered water at the works contained 30 microbes per cubic centimètre.

Chicago Exhibition, 1893.—We mentioned last week that the two British representatives at the Chicago Exhibition, Sir R. Webster and Sir H. Trueman Wood, have received complimentary diplomas, which were issued by the President of the United States. The exhibitors, we are informed, who were (nominally) awarded honours, have received nothing up to this date, save a book-marker-like ribbon, with their respective names upon it, for which they were all charged 3 dollars (12s. 6d.) apiece.

New Monument, York Minster.—On the 9th inst. a monument erected in memory of the late Archbishop Thomson was unveiled in York Minster. The memorial stands beneath a blank arch in the east wall of the south transept. The design is in the Early Perpendicular style. For the most part the work has been carried out in Tottenhoe Clunch stone, from Bedfordshire. The plinth and step of the altar-tomb are of Belgian black marble, while in one or two parts white Carrara marble is used. There are nine panels in front of the altar-tomb, each of which is filled by the figure of an angel. On a shield borne by the central figure are engraved the letters "I.H.C.," the letters "X.P.C." appearing on the shields of the figures at the two extremities. On the other six shields are carved emblems of the Passion. These panels are surmounted by a slab of marble, on which rests the sculptured effigy of the late Archbishop in a recumbent position. Mr. Thornycroft, R.A., was the sculptor entrusted with the task of reproducing the features of Dr. Thomson. On each side of the altar-tomb are buttresses, with pinnacles, rising from the base to the cresting of the canopy. In the canopy itself are tracery windows, perforated and enriched with crockets, finials, and other ornamentations. The whole is surmounted by cresting. The canopy is groined beneath with fan groining, terminated by pendants. The memorial was designed by Mr. Bodley, of the firm of Messrs. Bodley & Garner, who are consulting architects to the Dean and Chapter. The contractors were Messrs. Farmer & Brindley, of London.

Trade Outings.—On the 10th inst., on the invitation of Mr. Howard Colls, the foremen in the employ of Messrs. Colls & Sons, with several clerks of works, numbering about fifty, had an excursion. Taking train to Swanley, brakes were in waiting to drive them to the ancient church of St. Margaret, Darenth, where the vicar met the party, and pointed out the most interesting features in the building, and explained the various alterations which had been made at different periods. The party then proceeded to view the remains of the Roman Villa, in the immediate vicinity, which have been recently discovered. Mr. Payne, F.S.A, who superintended the excavations, attended by appointment, and explained the various portions of the remains. The drive was then continued to the "Lion Hotel," Farningham, where dinner was provided. ——A number of the *employés* of Messrs. Lathey Bros., builders, St. George's Works, Battersea, went for their annual beanfeast to Bournemouth on Saturday last. Dinner was presided over by Mr. Edwin Lathey, who was supported by his two elder sons.

Shropshire Archæological Society.—The annual excursion of the Shropshire Archæological and Natural History Society took place on the 15th inst. in the Ludlow district. The members, arriving at Ludlow, proceeded to Bitterley Court, where some valuable MSS. and relics of Charles I. were inspected. The old parish church and its Norman cross were also visited and inspected, and the party afterwards drove to Whitton Court, built by Robert Charlton, father of Sir Job Charlton, where the tapestried rooms were visited. From Whitton the members drove through Greet to Burford Church, where the triptych to the memory of Edward Cornwall, Baron of Burford and Sheriff of Salop, in 1580, was examined; also in the canopy under the chancel were observed recumbent figures of Princess Elizabeth, daughter of John of Gaunt, and another of Edmund Cornwall; also a Perpendicular font, a piscina, a carved screen, and some encaustic tiles. On returning from Burford to Ludlow a visit was made to Caynham Camp. The party returned to Ludlow for tea, and left for Shrewsbury in the evening.

Smells in the House of Commons.—In the House of Commons on Tuesday Mr. Hermon Hodge asked the First Commissioner of Works whether he was aware that during the earlier portion of the afternoon there was a most horrible smell of drains in the neighbourhood of the Bar of the House, and whether he would endeavour to put a stop to a state of things that was not uncommon in the House, and was very prejudicial to the health of Members.—Mr. Akers Douglas said he had had no notice of the question, but he would make inquiries at once.

LEGAL.

BUILDING DISPUTE AT RICHMOND.

The case of the Corporation of Richmond *v.* Harper came before Mr. Justice Mathew, sitting as Vacation Judge, on Tuesday last, it being a motion on behalf of the plaintiff Corporation to continue an interim order made by his Lordship, extending over Tuesday, restraining the defendant from erecting any buildings in the Lichfield-road, Richmond, beyond the front main wall of the houses or buildings on the other side thereof without the plaintiff's consent.

Mr. Oswald, Q.C., M.P., and Mr. Macmorran appeared as counsel for the plaintiff Corporation, while Mr. Marten, Q.C., represented the defendant.

Mr. Oswald said that the application was made under the Statute of 1888, which provided that no one should, without the written consent of the Urban Authority, erect or bring forward any house or building in any street beyond the front main wall of the houses or buildings on either side thereof in the same street.

Mr. Marten said that the defendant denied that the road was called Lichfield-road. There were two points in the case. One was that it was not the same street, and the other that there was no building "on either side" within the meaning of the Act of Parliament.

Mr. Oswald said that his Lordship would see from the plan that on the south side of Lichfield-road there were twelve houses forming a clear line of frontage. That line of frontage was 22 ft. from

the pavement; that was to say, that there were forecourts or gardens in the front of those houses which were 22 ft. in depth. What the defendant had done was to begin to build—he had only got the foundations in—without the approval or consent of the Corporation, which was the Urban Authority, five houses, and had admittedly put the front of those houses 15 ft. 9 in. in front of the other twelve houses which formed the line of frontage on the south side of the road, only giving about 6 ft. between his proposed houses and the road. Lichfield-road was an important thoroughfare, and one in which the houses which had been erected were of considerable value.

His Lordship: What is the distance of the nearest house?

Mr. Oswald: 175 ft., we say; the defendant says, 184 ft.

Continuing, the learned counsel said that the defendant's contention was that the part of the road in question was in the Broadway, and not in the Lichfield-road, and he had put up on the houses he was building the word "Broadway." He (the defendant) did not pretend that the Local Authorities had ever changed the name of the Lichfield-road, but because he called his houses "Broadway" he tried to say that there were two roads—one the Broadway and the other the Lichfield-road.

His Lordship: It is a very serious thing to interfere with property in this way. This man has bought the land, and is entitled to use it. In a new locality like this it is a strong thing to say that a man shall not use his land to the best advantage.

Mr. Oswald: It is not a new locality. He bought his land and put his houses up, and knew the line of frontage and the Act of Parliament of 1888.

His Lordship said that it was not a matter he could decide then.

Mr. Marten said that the defendant was willing to give an undertaking to "pull down," if it was proved that he was wrong at the trial of the action. What the defendant was willing to do, was to go on building and to take his chance at the trial. The plaintiffs knew that the defendant was under a time contract as to one of the buildings, which was going to be a post-office.

After some further discussion, it was arranged that his Lordship should make no order on the motion, on the defendant undertaking to "pull down" if it was proved that he was wrong at the trial; that the case should be set down for trial at once, no pleadings being required, as the points in issue were sufficiently raised on the affidavits; and with liberty to apply to advance the trial.

BUILDING INTO A WALL.

THE case of Forrest *v.* Dodshon came before Mr. Justice Mathew, sitting as Vacation Judge, on Tuesday last, it being a motion to restrain the defendant by injunction from cutting into or building into the plaintiff's wall.

His Lordship made no order on the motion on the defendant undertaking to "pull down" if, at the hearing of the action, the case was decided against him.

ALLEGED TRESPASS ON A WALL.

THE case of Podmore *v.* Mayhoe came before Mr. Justice Mathew, sitting as Vacation Judge, on Tuesday last, it being a motion to restrain the defendant from committing an alleged trespass on the plaintiff's premises in building brickwork into the plaintiff's wall.

His Lordship made no order on the motion on the defendant agreeing to "pull down," in the event of his being held to be in the wrong when the action was tried.

PARTY-WALL DISPUTE.

THE case of Alchin *v.* Hosegood, on Tuesday last, came before Mr. Justice Mathew, sitting as Vacation Judge, on the motion of the plaintiff to restrain the defendant, by injunction, from interfering with a party-wall without complying with the provisions of the London Building Act.

It appeared that Mr. Justice Chitty granted an interim injunction over Tuesday, restraining the defendant in the terms of the notice of motion.

In the result, by consent, the defendant submitted to a perpetual injunction in the terms of the notice of motion, agreed to pay the plaintiff's costs, and to treat the motion as the trial of the action.

LITIGATION AS TO A WALL AT NORWICH.

THE case of Freeman *v.* Robbins came before Mr. Justice Mathew, sitting as Vacation Judge on Tuesday last, on the motion of the plaintiff, the freeholder of a house in Marlborough-villas, Norwich, to restrain the defendant from removing or pulling down a certain wall or fence, or from otherwise inferfering with it. The plaintiff also claimed a mandatory injunction ordering the defendant to reinstate the plaintiff's wall or fence.

His Lordship made no order on the motion on the defendant consenting to "pull down" after the hearing of the trial if he should be held to be in the wrong.

CAPITAL AND LABOUR.

STATE OF EMPLOYMENT IN JULY.—The August issue of the *Labour Gazette* states that there has been a further improvement, on the whole, during the month in the state of the labour market, and the percentage of unemployed in unions making returns has continued to decline. In the eighty-six trade unions, with an aggregate membership of 391,093, making returns, 20,574 (or 5·3 per cent.) are reported as unemployed at the end of July, compared with 5·6 per cent. in June, and 7·4 per cent. in the fifty-two unions making returns for July, 1894. The building trades, on the whole, continue busy, and the percentage of unemployed in the unions making returns has fallen from 2·5 in June to 2·4 in July, compared with 3·6 in July last year. Ten disputes have taken place in the building trades, three of which were chiefly due to wages questions, three were on questions of working arrangements, three were due to the refusal of the men to work with non-unionists, and the remaining one was a demand for the reinstatement of discharged colleagues.

JOINERS' WAGES IN EDINBURGH AND LEITH.—A mass meeting of the joiners in Edinburgh and Leith was held on the 16th inst. in the Oddfellows' Hall, Edinburgh. The meeting was convened for the purpose of considering the position of the trade as a whole, in view of the notice given making a demand for an advance from 8d. to 8½d. per hour, thus raising the weekly wage from 34s. to 36s. 1½d. About a year ago the men decided to ask for an eight-hours' day or forty-five-hours' week, but the masters declined to discuss the question before the Conciliation Board or to submit it to an arbitrator. The men then reviewed their attitude, and the present demand for an increase of ½d. per hour was the result. In the spring the masters made an offer of one farthing advance, but the men refused to accept that concession. At the meeting on the 16th inst. it appeared from reports submitted that only twenty-seven of the masters had agreed to grant the increase in view of a general agreement being brought about with the masters, others had either refused or had not been individually approached on the matter, and these formed the large majority of the masters. The vote was taken as between a motion to strike and an amendment not to strike. The amendment was adopted by a large majority. In view of the result of this vote the notice for an increase will be withdrawn.

SUB-CONTRACTING AND GOVERNMENT CONTRACTS.—Mr. Akers-Douglas, First Commissioner of Works, has received a deputation of the Building Trades' Federation on the subject of sub-contracting, and as the result of the interview, requested the Federation to draw up a clause suitable for insertion in Government contracts.

THE BUILDING TRADE IN DUNDEE.—All departments of the building trade in Dundee, says the *Dundee Advertiser*, are at present in a state of more than average briskness, and labour is in consequence practically fully employed. The masons in particular are experiencing the benefits of the improved condition of affairs. For instance, a great demand exists for hewers, every yard in the city being hard at it, and employers are complaining that the supply is wholly inadequate to cope with the requirements. Men in quest of work are a rarity, and in explanation of this fact it is stated that in St. Andrews, Kirkcaldy, and other places in Fife there is at the present time something like a building "boom," big contracts and plenty of them being the order of the day, and that employers there cannot find enough men to overtake the rush of work. Although the pliers of stone and mortar are thus flourishing meantime, it is feared in several quarters that the spurt will not last for any lengthened period. The reason given—that is to say, the principal reason—for this pessimistic opinion emanates from the masters, and may be commended to the attention of the operatives as worthy of their serious consideration. It is urged that the recent advance in wages from 8d. and 8½d. to 8½d. and 9d. per hour has had the immediate effect of putting a stop to several important contracts that were pending.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

16,462.—CONSTRUCTION OF WATER-CLOSETS: *W. Hodgson.*—The object of this invention is to provide a large area of water surface with only a small surface of basin exposed, and a deep seal trap. The flushing arm and ring are opposite the outlet, and the side of the basin inclined about 45 deg. The basin is sloped and semi-circular in shape, and the space between the level of the water and the top of the basin is greatly shortened.

16,581.—ROOFING TILES: *H. E. Hayes.*—A dovetail locking joint is, according to this patent, formed by making projections and recesses to engage with each other. In one set the projections, &c., are made in the centre, and in the other at the corners, so as to break joint.

21,937.—DRAINS AND SEWERS: *J. Barber.*—This patent relates to an improved method of ventilating drains and sewers. It consists in causing a current of air to flow through a conduit or pipe arranged above, and communicating at intervals with the drain or sewer, whereby the foul gases are withdrawn from their escape into the atmosphere.

8,513.—TROUGH CLOSETS: *J. Rimmer.*—Where the closets are flushed by waste water collected in a tipping basin, the trough of a water-closet forms the bottom of a pit, or well. The waste-water pipe discharges itself into one end of the trough, the other end of the trough opening into a specially-formed open-mouthed trapped outlet-pipe. At the junction of the trough end and outlet-pipe a horizontal weir, or sill, is formed, insuring a certain depth of water remaining in the trough after each flush out.

10,804.—SAWS FOR STEEL: *J. Oldham.*—These saws have separate specially-shaped and hardened teeth, which are inserted in a disc, and run at a rate cutting the hardest steel.

11,344.—FLUSHING WATER-CLOSETS.—Taps, or valves and service-pipes are provided in order to enable high-pressure water to be delivered direct into the pans of the closets, so as to utilise its full force, and at the same time make provision for automatically shutting off the high-pressure water after a sufficient quantity has been supplied, and also for supplying a small quantity of water to the pan of the closet by way of an after-flush, in order to ensure a sufficient quantity of water always remaining in the pan.

NEW APPLICATIONS FOR LETTERS PATENT.

AUGUST 6.—14,803, H. Cartlidge Potter's Kilns.—14,805, J. Kennedy, Facilitating the Painting of Windows.—14,813, G. Johns, Machine for Piercing Holes in Wood.—14,815, G. Johns, Cramp for Light Wooden Frames.—14,816, C. Collinson, Supporting Tiles, &c., while being Fired.—14,848, H. Joly, Girders.—14,878, A. Boult, Temporary Fixing of Doors, Windows, &c.

AUGUST 7.—14,903, R. McKellar, Smoke and Ventilating Cowls.—14,897, J. Millar, Friction Hinges.—14,936, E. Schmahl and F. Feller, Glue or Size.—14,940, H. Macklin, Catches for Doors, &c.

AUGUST 8.—14,942, W. Firth, Drain and Pipe Stop or Plug for Testing Pipes or Drains.—14,950, J. Welton, Levels.—14,951, A. Ashworth, Locks for Desks, Cabinets, &c.—14,958, J. and W. Allen, Locking and Movable Air-tight Joint for Sockets of Sanitary and other Cylindrical Pipes.—14,967, A. Wilson, Windows.—14,969, W. Treseder, Wood Screws.—14,976, A. Berkel and H. Tipping, Artificial Wood and Stone for Building, and other purposes.—14,979, H. Coombs, Water-waste Preventer, &c.—15,001, A. MacIver, Construction of Windows.

AUGUST 9.—15,016, J. Shuttleworth, Window or Sash Fastener.—15,019, R. Taylor and D. Moseley, Side Guards for Doors.—15,030, R. Doenitz, Ventilating Elbow-pipe for Stoves.—15,042, S. Rowley, Syphon Water-closets.—15,052, E. Wynne, Ladder Rungs.—15,058, C. Forell, Portland Cement.—15,061, R. Allison, Sash Fasteners

AUGUST 10.—15,071, T. Hall, Masons' and Builders' Scaffolding.—15,102, W. Youlten, Top Sash Openers.

PROVISIONAL SPECIFICATIONS ACCEPTED.

11,075, T. Daly, Window Ventilation.—11,132, D. Simpson and A. Cross, Hinge.—12,261, A. McGarry, Shell Wind-Guard Chimney-pot.—12,788, J. Timpson, Whitewash or Colouring Composition.—13,009, J. Benton, Automatic Feed for Small Circular Saw-benches for Steam Power.—13,759, J. Orton, Screws and Screw-drivers.—14,235, H. Jones, of the firm of W. P. Thompson & Co., Chimney Cowl, &c.—14,319, C. Zapp, Window-catches or Fasteners.—14,351, R. Taylor, jun., and L. Dunkerley, Machines for Sharpening Saws.

COMPLETE SPECIFICATIONS ACCEPTED.

(*Open to Opposition for Two Months.*)

18,961, R. Pye, Moistening, Heating, Cooling, and Ventilating Factories, &c.—19,233, J. Keith, Radiators for Heating and Ventilating.—12,957, H. Wood, Bricks, Tiles, &c.—13,033, J. Bernheimer and T. Manger, Door Fasteners and Apparatus for Operating the same from a distance.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

AUGUST 13.—By *W. Simmonds*: 113, 115, 117, and 119, Neate-st., Camberwell, u.t. 9 yrs., g.r. 20*l.*, 225*l.*; 268, Albany-rd., f., r. 38*l.*, 545*l.*; 351, Albany-rd., f., r. 42*l.*, 650*l.*—By *Debenham, Tewson, Farmer & Bridgewater*: "Langdon Abbey" Farm, West Langdon, Kent, containing 639 a. 2 r. 27 p., f., 5,700*l.*—By *Protheroe & Morris*: Burnt Oak Farm, Prittlewell, Southend, containing 41 a. 2 r. 33 p., f., 4,925*l.*; an enclosure of land, Leigh, 9 a. 2 r. 25 p., f., 650*l.*; "Little Folly" Farm, containing 16 a. 1 r. 39 p., f. and c., 700*l.*; two enclosures of land, Prittlewell, containing 14 a. 1 r. 22 p., c., 610*l.*—By *Reynolds & Eason*: 28 and 30, Frampton Pk.-rd., Hackney, u.t. 60 yrs., g.r. 8*l.* 8s., 555*l.*—By *E. & H. Lumley*: 24, Hemsworth-st., Hoxton, u.t. 36 yrs., g.r. 3*l.* 15s., 155*l.*—By *F. J. Bisley & Sons*: 22, 24, and 26, Debnam's-rd., Rotherhithe, u.t. 56 yrs., g.r. 9*l.*, 150*l.*; 5, Clarence-st., f., 170*l.*; 5 and 6, Trundley's-rd., Deptford, u.t. 71 yrs., g.r. 9*l.* 10s., r. 62*l.* 8s., 440*l.*—By *E. & H. Lumley* (at Teignmouth): Freehold rent charges of 28*l.* 10s., West Teignmouth, Devon, 670*l.*; a building site, Exeter-rd., containing 1 a. 0 r. 37 p., f., 250*l.*; enclosures of land, Buckeridge-rd, 10 a. 1 r. 0 p., f., r. 45*l.*, 1,100*l.*; "Sandy Mount," Exeter-rd., and half an acre, f., 425*l.*

AUGUST 14.—By *Rutley, Son, & Vine*: 86 and 88, St. Mary's-rd., Peckham, u.t. 73 yrs., g.r. 12*l.* 6s., r. 60*l.*, 540*l.*; 29, Clarendon-st., Harrow-rd., u.t. 57 yrs., g.r. 8*l.*, r. 39*l.*, 150*l.*; 68, Avenue-rd., Acton, f., 340*l.*; 95, Granville-rd., Kilburn, u.t. 67 yrs., g.r. 8*l.* 10s., 140*l.*; 103, Granville-rd., u.t. 67 yrs., g.r. 8*l.* 10s., 160*l.*—By *Allen & Hoar*: F.g.r. of 30*l.*, Balmoral-rd., Willesden, reversion in 98 yrs., 780*l.*—By *W. R. Smith & Son*: 37, Werrington-st., St. Pancras, u.t. 54 yrs., g.r. 10*l.*, 235*l.*—By *E. H. Henry*: 66, Lansdowne-rd., South Lambeth, u.t. 47 yrs., g.r. 10*l.* 4s., r. 65*l.*, 675*l.*; No. 439, Wandsworth-rd., u.t. 7 yrs., g.r. 6*l.* 15s, r. 54*l.* 19s., 100*l.*; Nos. 306 and 308, u.t. 5 yrs., g.r. 22*l.*, 110*l.*; 7 and 9, Westmoreland-st., Pimlico, u.t. 35 yrs., g.r. 32*l.*, 570*l.*; 60, High-st., Hounslow, c., 195*l.*—By *W. Martin*: 5, 7, and 9, Mount Villas, Dulwich, u.t. 80 yrs., g.r. 18*l.*, r. 88*l.*, 723*l.*; 29 and 31, Wildash-rd., u.t. 80 yrs, g.r. 15*l.*, r. 69*l.*, 615*l.*

AUGUST 15.—By *J. Hibbard & Sons*: "The South London Music Hall," London-rd., Southwark, with buildings in rear, u.t. 45 and 44 yrs., g.r. 465*l.*, 28,100*l.*—By *Stimson & Sons*: 31 and 32, Worsill-st., Battersea, u.t. 70 yrs., g.r. 7*l.*, r. 52*l.*, 335*l.*; 68, Westmoreland-rd., City-rd., f., r. 39*l.*, 350*l.*; 84, Westmoreland-rd., f., r. 42*l.*, 350*l.*; 60, Fairholt-rd., Stoke Newington, u.t. 84 yrs., g.r. 8*l.*, e.r. 45*l.*, 475*l.*; 17 and 19, Hartham-rd., Holloway, u.t. 61 yrs., g.r. 16*l.* 16s., 700*l.*; 57, Cator-st., Peckham, u.t. 67 yrs., g.r. 4*l.* 4s., r. 28*l.* 12s., 150*l.*; 5, Archdale-rd., Dulwich, u.t. 79 yrs., g.r. 4*l.*, r. 23*l.* 8s., 120*l.*; "Hedsor Lodge," Belmont-rd., Twickenham, u.t. 60 yrs., g.r. 10*l.* 10s., r. 40*l.*, 400*l.*; f.g.r. of 3*l.*, Raby-rd., New Malden, f., reversion in 86 yrs., 75*l.*; 100, 104, 106, 108, 110, and 112, Alexander-rd., Holloway, u.t. 68 yrs., g.r. 37*l.* 16s., r. 178*l.*, 1,300*l.*; 10 and 14, Montpelier-st., Walworth, u.t. 20 yrs., g.r. 9*l.*, r. 74*l.* 16s., 300*l.*; 58, Chaucer-rd., Herne Hill, u.t. 75 yrs., g.r. 6*l.*, r. 32*l.*, 250*l.*—By *T. B. Westacott*: 40 and 42,

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Extension of Asylum	East Riding L. A. Com.	50*. 25*. and 10*.	Aug. 28
Board Room, Offices, &c.	Newport (Mon) Un.	30*. 15*.	do.

CONTRACTS

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Whinstone Road Metal (200 tons)	Amble (Northumberland) U.D.C.	W. Gibson	Aug. 26
Sewering, &c. Derby-street East	Burton-on-Trent Corp.	J. E Swindlehurst	Aug. 27
Additions to School, near Montrose	Johnshaven (N.B.) School Board	J. Sim	do.
Schools, Newark	Leicester Corp.	Everard & Pick	do.
Four Cottages, Boss Hall Farm, Sproughton	Ipswich Indus. Co-op. Soc. Lim		do.
Drainage Works, Bohortha	Truro R.D.C.	*Official*	do.
*Weighbridge, Office, and Pay Clerk's Room	Shoreditch Vestry	do.	Aug. 28
Cottage, Alnwick Moor, Alnwick	J. Gibson	M. T. Wilson	do.
Fish Market Buildings, Offices, &c. Sutton Harbour, Plymouth	Sutton Harbour Improvement Co.	H. Masterton	do.
Warehouse, Mayday Green, Barnsley	Barnsley Town Coun.	Robt. Dixon	do.
Sewers, &c. Westfield-street, &c.	Gelligaer(Wales)R.D.C.	H. Taylor	do.
Sewering, Bedlinog	do.	J. Jones	do.
Limestone Road Metal (1,700 tons)	Handsworth (Staffs) U.D.C.	W. Bevan	do.
Road Metal for one year		E. Kenworthy	do.
*Alterations, Forest Gate School	The Managers	G. E. Holman	Aug. 29
Street Works	Hertford Corp.	*Official*	do.
Two Shelters	Lytham (Lancs) U.D.C.	do.	Aug. 30
*Additions to Institute Buildings	Committee Albert Institute, Windsor		do.
Concrete Reservoir, Pipes, &c.	Stratford - on - Avon Corp.	T. Rowland	do.
Channelling, &c. Springfield-road	Hastings R.D.C.	Jeffrey & Skinner	Aug. 31
Three Houses, Blenheim-road, Ravenscroft-park, Barnet	Thos Smith		do.
Shops and Houses, Quebec, near Durham	Esh Co-op. Soc.		do.
House and Shop, Queen-street, Morley, Yorks	C. Scarth	G. B. Clegg	do.
Guernsey Granite (1,700 tons)	Romford U.D.C.	*Official*	do.
Macadam (2,000 tons)	Runcorn R.D.C.	do.	do.
Cast-iron Pipes, &c.	Sandbach U.D.C.	do.	do.
*Three Houses, Barnet	T. Smith	do.	do.
House and Office, Armagh		R. Watt	Sept. 1
*Foundation Works, New Asylum, near St. Albans	Herts L. A. Com.	G. T. Hine	Sept. 2
*Underground Convenience	Islington Vestry	J. P. Barber	do.
House and Four Cottages, Bradshaw, near Halifax		Horsfall & Williams	do.
Surveyor's Materials	Norwich Corp.	A. E. Collins	do.
Street Works, California	Pontefract U.D.C.	A. Oddy	do.
Sewering, Paving, &c. Bardsley-street and others	Reddish U.D.C.	T. S. McCallum	do.
Schools	Haworth (Yorks) Sch. Bd.	W. & J. B. Bailey	do.
Block and Ward at Sanatorium	Lancaster Corp.	J. Cook	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Broken Granite, Flints, Limestone, and Gravel	Esher U.D.C.	A. J. Henderson	Sept. 3
Widening, Higher Compton-road	Compton Gifford (Devon) U.D.C.	R. H. Worth	do.
Quennet Granite, &c.	Thames Ditton U.D.C	A. J. Henderson	do.
Sewer, Alexandra-road	Windsor T. C.	*Official*	do.
*Blocks of Dwellings for Working Classes	LondonCountyCouncil	do.	do.
*Paving Works	Hove U.D.C.	do.	Sept. 4
*Steam Disinfector, &c.	West Ham Union	do.	do.
*Painting, &c. of Infirmary	Camberwell Guardians	do.	do.
*Road-making Works	Southend Corp.	H. Harlock	do.
*Alterations, &c. to Plaistow House	West Ham Union	F. J. Sturdy	do.
Broken Granite (400 tons)	Shirley & Freemantle (Hants) U.D.C.	E. J. Batten	do.
Waterworks	Congleton R.D.C.	W. Wyatt	do.
*Broken Granite and Flints	Orsett R.D.C.	F. G. Brumell	do.
*Alterations, &c. Workhouse	Stepney Union	G. E. Holman	Sept. 5
*Superstructure of Machine Shop, &c.	Willans & Robinson, Lim.	T. W. Willard	do.
Waterworks, Heaton	Bradford Corp.	F. Watson	Sept. 6
Additions, &c. to Police Station, Barry Docks	Glam. C.C.	*Official*	do.
*Repairs and Materials, Liverpool District	War Department	do.	Sept. 7
*Supply of Ballast	L. & S. W. Ry. Co.	do.	Sept. 9
*Branch Post-office, Stratford	Com. of H.M. Wks, &c	do.	do.
Paving, Sewering, &c. Green-lane and Benfield-street	Heywood (Lancs) T. C.	J. Diggle	do.
Lecture Hall and Schools	West Hartlepool Corp.	H. A Cheers	do.
Office, &c. at the Workhouse, Beckett-st..	Leeds Union	T. Winn	do.
Schools, Harpfield	Stoke - on - Trent Sch. Bd.	R. Scrivener & Sons	do.
Levelling, Paving, &c. David-lane, Batley-Carr	Batley T. C.	H. Dearden	do.
*New Station Buildings, Wrangaton	G. W. Ry. Co.	*Official*	Sept. 10
*Erection of School	Barking Sch. Bd.	C. J. Dawson	Sept. 11
*Engineering Work to Infirmary	St. Olave's Union	Newman & Newman	Sept. 12
*Broken Granite and Flints	Watford U.D.C.	*Official*	Sept. 16
*New Hospital and Reception Wards	Lancashire Asy. Bd.	Simpson & Duckworth	Sept 28
*Farm Buildings, &c. Petersfield	W. Nicholson, Esq.	Crickmay & Sons	No date
Metalling and Forming Roads, Morpeth		G. Reavell, jun.	do.
Alteration to Shop, &c. Long Causeway, Peterborough	Mrs. Fox	J. G. Stallebrass	do.
Spirit Stores, &c. Burnley, Lancs.	Massey's Burnley Brewery Co.	T. Bell	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Surveyor	Croydon U.D.C.	300*.	Aug. 28
*Surveyor	St. George-the-Martyr Southwark Vestry	250*. &c.	Sept. 2
*Inspector of Nuisances	Beckenham U.D.C.	175	Sept. 9
*Surveyor, &c.	Chippenham U.D.C.	120*.	do.
*Mechanical Engineer	West Ham Council	200*. &c.	Sept. 23

Those marked with an asterisk (*) are advertised in this Number. ***Competition, p. iv.*** ***Contracts, pp. iv., vi., viii. and xviii.*** ***Public Appointments, p. xvi.***

Portland-st., Stepney, u.t. 12 yrs., g.r. 4*l*., e.r. 72*l*. 16s., 200*l*.; 10, Gloucester-st., Bloomsbury, f., r. 55*l*., 750*l*.—By *Newbon & Co.*: 129, Ball's Pond-rd., Ball's Pond, f., 550*l*.; 1, Hide-st., Holloway, u.t. 65 yrs., g.r. 4*l*., r. 26*l*., 210*l*.—By *Glover & Harrison* (at Chiswick): 37 and 39, Priory-rd., Chiswick, u.t. 83 yrs., g.r. 17*l*. 17s., r. 95*l*., 800*l*.; 8, Marlborough-cres., u.t. 79 yrs, g.r. 2*l*., r. 50*l*., 440*l*.

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G.	ton	8/0/0 0/0/0
Teak, E.I.	load	10/0/0 16/0/0
Sequola, U.S. ft. cu		1/10 2/2
Ash, Canada load		2/15/0 4/0/0
Birch, do.		2/5/0 3/10/0
Elm, do.		3/10/0 4/15/0
Fir, Dantsic, &c.		1/15/0 3/10/0
Oak, do.		2/15/0 4/15/0
Canada		6/0/0 7/10/0
Pine, Canada red		0/0/0 0/0/0
Do. Yellow		2/15/0 5/0/0
Lath, Dantsic, fath		4/10/0 5/10/0
St. Petersburg		5/0/0 6/10/0
Wainscot, Riga, &c., log		4/10/0 6/10/0
Odessa, crown		4/10/0 6/10/0
Deals, Finland 2nd & 1st std 100		7/0/0 8/10/0
Do. 4th & 3rd		7/0/0 8/0/0
Do. Riga		7/0/0 8/0/0
St. Petersburg, 1st yellow		9/10/0 12/0/0
Do. 2nd yellow		7/10/0 9/0/0
Do. white		8/0/0 9/10/0
Swedish		7/0/0 15/10/0
White Sea		7/10/0 15/0/0
Canada, Pine 1st		22/0/0 24/0/0
Do. do. 2nd		16/10/0 17/10/0
Do. do. 3rd, &c.		8/5/0 10/10/0
Do. Spruce, 1st		9/0/0 10/10/0
Do. do. 3rd and 2nd		6/10/0 7/10/0
New Brunswick		6/0/0 7/0/0
Battens, all kinds		5/0/0 21/0/0
Flooring boards, sq., 1 in. prep. 1st		0/9/6 0/14/6
Do. 2nd		0/6/6 0/11/6
Other qualities		0/4/6 0/7/6
Cedar, Cuba	ft.	/3 /4
Honduras, &c.		/3 /4½
Mahogany, Cuba		/3 /6
St. Domingo, cargo av.		/3 1/0
Mexican do. do.		/3 /4
Tobasco do. do.		/3½ /6
Honduras do.		/3½ /5½
Box, Turkey ton		4/0/0 15/0/0
Rose, Rio		7/0/0 16/0/0
Bahia		6/0/0 15/0/0
Satin, St. Domingo		0/0/5 0/1/0

TIMBER (*continued*).

Satin, Porto Rico		0/0/6 0/1/6
Walnut, Italian		0/0/3 0/0/7

METALS.

Iron—Pig, in Scotland	ton	2 6 c½ 0/0/0
Bar, Welsh, in London		5/12/6 5/15/0
Do. do. at works in Wales		5/2/6 5/5/0
Do. Staffordshire, in London		6/0/0 6/10/0
COPPER—British cake and ingot		50/5/0 50/15/0
Best selected		51/0/0 51/10/0
Sheets, strong		57/0/0 0/0/0
Chili bars		46/18/9 47/3/9
YELLOW METAL		0/0/4-5/16 0/0/4⅝
LEAD—Pig, Spanish	ton	11/0/0 11/2,6
English com. brands		11/1/3 11/3/9
Sheet, English, 6 lbs. per sq. ft. and upwards		12/c/0 0 0/0
Pipe		12,10/0 0/0/0
ZINC—English sheet	ton	18/10/0 0/0/0
Vieille Montagne		19/0/c 0/0/c
TIN—Straits		63 17/6 64/7/6
Australian		64/17/6 65/7/6
English Ingots		67 0/0 67 10/0
Banca		65/10/c 65 15/0
Billiton		65 0/0 65 5/0

OILS.

Linseed	ton	20/15 0 21/c/0
Cocoanut, Cochin		24/0/0 0/0/0
Do. Ceylon		22/15/0 0/0/0
Palm, Lagos		22/c/0 0/0/0
Rapeseed, English pale		22 5/0 c/0/0
Do. brown		20/15/0 0/0/0
Cottonseed ref.		17/10/0 18/0/0
Oleine		20/10/0 21/10/0
Lubricating, U.S.		5/9/0 8/3/0
Do. black		4/6/0 6/6/0
TAR—Stockholm	barrel	c/19 6 0/c/0
Archangel		0/14/6 0/c/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

ABERDEEN.—Accepted for the execution of sewerage works, Urquhart-road and Queen's Links, for the Town Council. Mr. Wm. Dyach, Burgh Surveyor, Town-house, Aberdeen:—
Gall & Walker, Richmond-street, Aberdeen .. £3,450 1 6

ARNOLD.—For new girls' school to accommodate 240 scholars, in Church Drive, Arnold, Notts., for the Arnold School Board. Mr. W. H. Higginbottom, architect, 5, King John's Chambers, Nottingham. Quantities by the architect:—

J. Hutchinson	£4,874	G. T. Lovett	£4,374
T. Cuthbert	4 665	T. Barlow	4,367
Gilbert & Gabitass	4,583	Jas. Herring, Front-st., Arnold, Notts*	4,317
F. Evans	4,477	W. Maule	4,295
J. Cooper	4,435		

* Accepted.

ARNOLD (Notts).—For new cookery-room, new range of latrines, and new boundary-walls to the High-street Girls' School, Arnold, Notts., for the Arnold School Board. Mr. W. H. Higginbottom, architect, 5, King John's Chambers, Nottingham. Quantities by the architect:—

J. Hutchinson	£947	W. Maule	£820
T. Cuthbert	898	Geo. Sadler	819
Gilbert & Gabbitass	979	G. T. Lovett	798
T. Barlow	876	Jas. Herring, Front-street, Arnold*	797 16 10
F. Evans	865		
J. Cooper	855 15		

* Accepted.

BRIGHTON.—For the construction of sea-wall, &c., for the Town Council. Mr. F. J. C. May, C.E., Borough Engineer, Brighton:—

W. Lunn	£32,993	J. Longley & Co.	£30,569
G. Wimpey & Co.	31,277	J. Parsons & Sons	19,999
J. Dickson	29,807	B. Cooke & Co., London*	18,884
G. Lawson	23,398	T. Pedrette	18,800
Perrin & Ling	21,800		

* Accepted.

BRISTOL.—For the erection of a new boot factory in Wilson-street, St. Paul's, for Messrs. Pope & Co. Mr. W. Holbrow, surveyor, 6, St. Stephen's-avenue:—

A. J. Tucker	£2,550	G. Humphrey	£2,277
E. Love	2,475	R. Wilkins & Sons	2,134
Cowlin & Son	2,447	Wilkins & Goslin	1,995
E. Clark	2,380	Love & Wait	1,919
Hatherly & Carr	2 297	H. J. Rossiter	1,900
W. Veals	2,293	,, (amended)*	1,700

* Accepted.

BROOK (Hants).—For the reconstruction of a bridge on the Fordingbridge- and Southampton-roads, for the County Council. Mr. James Robinson, C.E., 13, Southgate-street, Winchester:—

S. Kavanagh	£419 7 6	J. Shering	£216 17 5
H. W. Bull	379 0 0	J. Moody, Landford Salisbury*	214 1 11
W. Barter	276 0 0		
R. Bright	239 1 3		

* Accepted.

BLYTH (Northumberland).—For the erection of extensive business premises for Messrs. Hedley & Co. Mr. W. E. L. Thompson, architect, Blyth. Quantities by Mr. Wm. Dixon, St. Johnstreet, Newcastle-on-Tyne:—

W. C. Tyrie	£8,589 0 0	Wm Lilburn	£7,625 8 6
J. N. Heatley	8 572 0 0	J. & W. Simpson, Blyth*	7,535 0 0
H. Brown & Co.	8,390 0 0	J. Howe & Co.	7,490 0 0
A. Pringle	8,299 0 0	S. B. Burton	7,382 2 10
J. C Hope	7 996 0 0		
T. Craggs	7,855 0 0		

* Accepted.

CARDIFF.—For the erection of teachers' class-rooms, gymnasium, and workshops, and altering and adapting existing semi-detached villa-residences for administrative offices, Howard Gardens, Cardiff, for the Cardiff School Board. Messrs. J. P. Jones, Richards, & Budgen, architects, 18, St. Mary-street, Cardiff:—

	Schools, &c.	Offices.
H. A. Force	£6,422 0 0	£1,023 10 0
Henry Gibbon	5,847 13 4	952 6 8
Shepton & Son	5,700 0 0	796 18 9
David Davies	5,625 0 0	860 0 0
Knox & Wells	5,563 0 0	937 0 0
Lattey & Co.	5,525 0 0	839 0 0
Cox & Bardo	5,380 0 0	935 0 0
E. F. Richards & Co	4,949 10 10	877 9 2
Henry Davies, Cardiff*	4,925 8 4	817 1 3

* Accepted.

COLCHESTER.—For additions (washhouse, &c.) to laundry at the workhouse, for the Colchester Board of Guardians. Mr. G. H. Page, architect, Trinity-chambers, Colchester. Quantities by the architect:—

G. Blace	£857 10	B. Beaumont	£742 0
A. Diss	825 0	W. Chambers, Magdalen-street, Colchester*	735 0
F. Dupont	765 0		

* Accepted subject to approval of Local Government Board.

DEWSBURY.—Accepted for the erection of reading-room, &c., Chickenley Heath. Messrs. Holtom & Fox, architects, Westgate, Dewsbury. Quantities by the architects:—

Excavating, Masonry, and Bricklaying.—Squire Booth, Earlsheaton, Dewsbury	£367 0
Carpentry and Joinery.—T. Spedding, Chickenley, Dewsbury	135 0
Plumbing and Glazing.—Frank Newsome, Northgate, Dewsbury	45 0
Plastering.—J. Lockwood, Staincliffe, Dewsbury	22 10
Slating.—Tom Breav, Eastboro, Dewsbury	20 13
Painting.—E. Oldroyd, Earlsheaton, Dewsbury	8 10
	£538 13

DURHAM.—For the execution of sewerage works, Ludworth, for the Rural District Council. Mr. Geo. Gregson, Surveyor, 38, Sadler-street, Durham:—

J. Manley	£159 0	H. Nicholson, Sherburn*	£121 0
J. Manners	153 0	J. Heslop	117 7
G. T. Manners	139 0		

* Accepted.

FILEY (Yorks.).—For the erection of four 18-roomed houses. Mr. Saml. Dyer, architect, Bridlington Quay. Quantities by Mr. John Watson, Hull:—

Martin & Sons	£9,405	A. Dove	£2,921
John Kennard	4,150	A. Moore	2,800
Moses Gage	3,080	John Thompson	2,757
Osbert Rymer	3,050	John Jaram, Scarborough (accepted)	2,752
Thomas Petch	2,028		

Stoves, mantels, palisading, and some sanitary appliances provided by the owner.

GALASHIELS (N.B.).—For the erection of a bridge over the River Gala, for the Corporation:—

Mason, &c., Works.

George Park & Son	£587 16	William Oliver	£530 0
Robert Hall & Co.	550 0	Walter Brown	485 0

Steel Girder Work.

Thomas Aimers & Sons	£174 0	William Oliver	£116 0
Brownlie & Murray	150 0		

Combined Works.

William Oliver, Edinburgh (accepted) £636

GILLINGHAM (Kent).—For the execution of main drainage works, for the Urban District Council. Messrs. Taylor, Sons, & Santo Crimp, engineers, 27, Great George-street, Westminster, S.W.:—

Herbert Stiff	£38,348 0 0	W. & T. Denne	£24,559 0 0
David Shanks	33,913 0 0	E. Iles	23,597 0 0
C. E. Skinner	32,175 0 0	Jas. Dickson	23 535 0 0
A. Kellett	31,598 5 5	John Shunn	22,768 9 9
John Mowlem & Co.	31,591 0 0	W. Cunliffe	22 550 12 0
Tuff & Miskin	28,030 5 0	H. B. & A. F. James	22,392 10 6
G. Bell	26,589 0 0		
John Jackson	26 198 17 6	Herbert Weldon, Temple-street, Birmingham*	21,991 13 6
Geo. Lawson	26,155 13 0		
Geo. Osenton	25,160 0 0		

Accepted.

GOOD EASTER (Essex).—For additions to school buildings, for the School Board. Mr. Richard Mawhood, architect, 2, Market-road, Chelmsford:—

H. West	£323 0	G. Holland, Gt. Leighs, Essex*	£295 0
W. Baker	322 10		

* Accepted.

GOWERTON.—For additions to Board Schools, Gowerton, near Swansea. Mr. T. P. Martin, architect, Swansea. Quantities by the architect:—

D. C. Jones	£360 11 3	T. D. Williams	£292 0 0
Thomas & Watkins	353 9 8	Bennett Bros., Swansea (accepted)	273 7 11
T. Richards	320 14 6		
Dd. Jenkins	298 4 1		

GRIMSBY.—For rebuilding stores at the fish docks:—

John Gray	£148 0 0	F. Grant	£146 19 0
L. A. Thomas	198 7 1	F. Walker, Abbey Walk, Grimsby*	138 0 0
John Pearson	142 10 0		

* Accepted.

HALIFAX.—Accepted for the erection of school buildings, Trooper-terrace, Caddy Field, for the School Board. Mr. Joseph F. Walsh, architect, Bank-chambers, Halifax. Quantities by the architect:—

Masonry.—George Tyson, Dunkirk, Halifax	£1,206 17 0
Joinery.—F. Greenwood, Gibralta, Halifax	208 0 0
Plumbing.—J. Naylor & Sons, Cheapside, Halifax	2 0 0 0
Slating.—Blackum & Davenport, Hyde Park-road	110 0 0
Concreting.—Noble & Blackey, Dewsbury	77 18 5
Ironwork.—J. Hitchen, Hall-street, Halifax	61 10 0
Woodblock.—Noble & Blakey, Dewsbury	65 6 5
Painting.—W. Taylor, Parkinson-lane, Halifax	29 0 0
Total	£1,958 11 11

HANWELL.—For drainage and decorative work at Elm-grove, Hanwell. Messrs. Inman & Jackson, architects, 7, Bedford-row, London, W.C.:—

W. Whiteley	£729 2 6	Adamson & Sons	£454 6 0
Phillips & Son	510 10 0	G. W. Pearce	391 10 0

HEREFORD.—For the erection of offices, warehouses, &c., at the Corporation Hop Market, Broad-street, &c., for the Corporation. Mr. J. Parker, City Surveyor, Hereford:—

W. P. Lewis & Co.	£1,416 10 0	W. Bowers & Co., Bath-st., Hereford*	£1,174 8 0
J. W. Smith	1,199 7 6		

* Accepted.

IRLAM (Lancs.).—For paving, &c., roads within the district, for the Urban District Council. Mr. W. R. Kay, Surveyor, Council Offices, Irlam:—

Jn. Burnham, Altrincham (the work is let on a schedule of prices).

KINGSCLERE.—For the erection of schoolroom, &c., for the Trustees. Mr. W. H. Bell, architect, Market-place, Newbury:—

Hoskings	£226 0	Head	£519 0
Wheeler	575 0	James, Newbury*	467 0
Chivers	545 9		

* Accepted.

[Architect's estimate, £550.]

KNOCKHOLT (Kent).—For erecting residence at Knockholt, Kent, for Dr. Stericker. Messrs. Barnes-Williams, Ford, & Griffin, architects:—

Bond	£1,300	Marsland	£990
J. W. Falkner	1,093	Battley, Sons, & Holness	930
Kick	1,047	Milliner, Tatsfield*	600

* Accepted.

LONDON.—For alterations to "The Victoria Tavern," Burdett-road. Mr. F. A. Ashton, architect:—

Kearle & Farrow	£2,855	J. & H. Cocks	£2,598
W. Watson	2,658	C. North	2,293
Wall & Co.	2,655	C. Holland	2,279
W. Shurmur	2,639		

LONDON.—For rebuilding the "Earl of Derby" public-house, Forest Gate, E. Mr. F. A. Ashton, architect:—

H. Wall & Co.	£3,198	W. Watson	£2,928
A. Reed & Son	3,048	J. & H. Cocks	2,893
W. Shurmur	2,967	W. J. Maddison	2,783
Hearle & Farrow	2,949		

LONDON.—For the erection of new public baths and washhouses, for the Commissioners of St. Marylebone Parish. Mr. A. Saxon Snell, architect. Quantities by Messrs. Northcroft, Son, & Neighbour:—

J. Simpson	£46 890	F. & H. F. Higgs	£44,768
G. H. & A. Bywater	46,787	Stimpson & Co.	44,689
Stanley Bird	46,215	Johnson & Co.	44 585
Kilby & Gayford	45,950	H. Wall & Co.	44,488
Beer & Gash	45,935	H. L. Holloway	43,973
Grover & Sons	45,773	Chas. Wall, Lots-road, Chelsea*	43,800
Patman & Fotheringham	45,687		
E. Lawrance	44,944		

* Accepted.

LONDON.—For alterations to "The Britis h Lion" public-house, West Ham-lane, E. Mr. F. A. Ashton, architect:—

Reed & Son	£1,498	Hearle & Farrow	£1,447
Wall & Co.	1,475	W. Watson	1,425
W. Shurmur	1,462	J. & H. Cocks	1,354

LONDON.—For erecting chimney shaft at Lea Valley Works, for Messrs. Connell & Co. Mr. J. Hamilton, architect:—

Parsons	£1,240	Hoare	£1,163
Beale	1,227	W. Shurmur	1,045
J. Chessum	1,111	Neal	957

LONDON.—For works to new warehouse, &c., Long Acre. Mr. W. A. Finch, architect:—

W. King & Son	£4 820	Killby & Gayford	£4,554
W. Shurmur	4,734	A. Bush & Son	4 500
Mark Patrick & Son	4,629	R. E. Wolsley & Co.	4,459

LONDON.—For the erection of water-tower, &c., at Excelsior Mills, Hackney. Mr. J. Hamilton, architect:—

Hayworth	£290	Barber	£182
Beale	279	W. Shurmur (accepted)	180
Mills	248		

LONDON.—For erecting warehouse at Pentonville. Mr. H. H. Tasker, architect:—

Dove Bros.	£493	Hunt	£455
Shurmur	486	Dearing	431
Pavey	459	Keason	410

LONDON.—For alterations to Mile End National Schools. Mr. A. Cox, architect:—

J. & H. Cocks	£4,935	Harris & Wardrop	£4,440
T. Rider & Son	4,840	Grover & Son	4,245
F. & F. Wood	4 830	W. Shurmur	4,194
A. Porter	4,757	Calnan & Son	3,954

LONDON.—For building the Hackney Parochial Schools, Homerton. Mr. A. Cox, architect:—

Chessum	£9,979	Fortescue	£8,976
A. J. Thompson	9,646	Perry & Co.	8,789
Killby & Gayford	9,250	H. J. Carter	8,349
McCormick & Son	9,100	Coulsell Bros.	8,343
Godson & Son	9,100	W. Shurmur	8,258
C. Cox	9,093		

LONDON.—For the erection of engine- and pump-room, Lower Market-street, Woolwich, for the Local Board. Mr. H. H Church, architect, William-street, Woolwich. Quantities by Mr. W. Whincop, William-street, Woolwich:—

Proctor	£928	Brown	£887
Young & Lonsdale	897	Holloway, Deptford*	868
Chapman	889		

* Accepted.

LONDON.—For the erection of ironing-room, &c., for the French Cleaning and Dyeing Company, Southgate. Mr. George K. Deakin, architect, Southgate, N.:—

F. Voller	£720	W. Pavey	£629
C. Newby	687	J. Pocock* (accepted)	528

LONDON.—Accepted for the erection of stables, Southgate, N., for Mr. John Eaton:—

C. Newby £250 0

LONDON.—For proposed additions, &c., to No. 38, Spencer Park, Wandsworth Common, S.W., for Mr. A. Whiting. Messrs. Beeston & Burmester, architects:—

C. Haughton	£996	T. O. Green	£937
Kinninmont & Sons	968	Ed. Heather	845
Stimpson & Co.	946		

LONDON.—For repairs, decorations, &c., house and stables, No. 25, Holland Park, W. Messrs. Mullett, Booker, & Co., surveyors:—

Lang & Son	£798 0	Kinninmont & Sons	£715 0
Clark & Manoech	797 0	Pears & Co.	630 18

LONDON.—For erecting new wing to the Kindergarten Training College in Talgarth-road, West Kensington, for the Committee of the Froebel Educational Institute. Mr. J. S. Quilter, architect:—

Battley, Sons, & Holness accepted without competition at same schedule of prices as in contract for main building just completed.

LONDON.—Accepted for alterations and reinstating carriage factory, Nos. 10, 12, and 14, Earl's Court-road, Kensington, after fire, for Henry Whitlock, Ltd. Mr. S. Wilson, surveyor, 34, New Bridge-street, E.C.:—

John Barker & Co., Ltd., Kensington £970

LONDON.—For forming new dry areas at the Cleveland-street Asylum, for the Managers of the Central London Sick Asylum District. Mr. W. S. Cross, architect. Quantities by Mr. A. G. Cross:—

T. Green	£243 0 0	Love	£184 15 2
Marchant & Hurst	234 0 0	Nicholson	179 15 0
J. B. Colwill	198 0 0	Thompson & Beveridge*	173 0 0
Wright	195 0 0	James & Co.	145 0 0
Yates	190 13 7		
Dorrell & Co.	189 0 0		

* Accepted.

LOUTH (Lincs.).—For the erection of class-room, &c., for the Fulstow School Board, Mr. W. G. Frost, architect, 115½, Victoria-street, Grimsby:—

R. Mawer	£235 0 0	J. Harrison & Son	£161 12 0
Harrison Brothers	194 10 0	J. W. Janney, Fulstow*	157 10 0
C. Mackarill	164 14 6		

* Accepted.

MAIDSTONE.—For the supply of road materials for the Urban District Council. Mr. F. Bunting, Borough Surveyor, Fair Meadow, Maidstone:—

Jas. Runnalls, Penter Elvan stone	£0 9 0	per ton.
A. Hutson, Guernsey Granite	0 7 10	,, ,,
S. Wagon, Pit flints	0 3 6	per yd.
,, Pit gravel	0 2 6	,, ,,
,, Pit sand	0 2 6	,, ,,
J. S. Gabriel, Tar concrete (fine)	0 14 0	,, ,,
,, ,, ,, (coarse)	0 12 0	,, ,,
S. Sills, 12 in. by 6 in. Ragstone kerb	0 0 9	per ft.
E. Van Praagh & Co., 12 in. by 6 in. Granite kerb	0 1 1½	,, ,,
J. S. Gabriel, 4 in. by 4 in. Granite cubes	1 7 0	per ton.

Ragstone and surface-picked flints to various local contractors and to various depots.

MAIDSTONE.—For erecting retaining wall and iron fence, High Level Bridge, Maidstone. Mr. F. Bunting, Borough Surveyor:—

A. Waters	£200 0 0	W. T. Burrows	£168 10 0
Weeks & Sons, Ltd.	174 6 0	Garrett, Saveall, & Co.*	163 12 6

[All of Maidstone.]

* Accepted.

METHLEY (Yorks.).—For supplying, laying, &c., flags for footpaths, for the Urban District Council. Mr. T. Thompson, Road Surveyor, Red House, Methley:—

Bateman, Wyke, near Bradford £164 1 4

PANNAL (Yorks.).—Accepted for the erection of school buildings, Oatlands, near Harrogate, for the School Board. Mr. T. A. Buttery, architect, Queen-street, Morley. Quantities by the architect:—

Masonry and Bricklaying.—J. Stephenson, Harrogate	£1,900 0 0
Carpentry and Joinery.—E. Walker & Sons, Rawdon	720 0 0
Plumbing.—J. Dickenson, Middlesbro'	202 0 0
Slating.—J. & W. Baynes, Harrogate	589 0 0
Plastering.—Laycock Bros., Harrogate	166 0 0
Painting.—George Dent, Harrogate	94 12 5

PETERBOROUGH.—For the erection of Primitive Methodist chapel, Walton, for the Primitive Methodist Trustees of Walton Chapel. Mr. W. Hawkins, architect, Old Fletton, Peterborough:—

W. Pape, Cromwell-road, Peterborough £172

PORT TALBOT (Wales).—For the erection of a villa-residence. Mr. T. P. Martin, architect, Swansea. Quantities by the architect:—

Cox	£2,039 0 0	Wm. Thomas	£1 620 0 0
E. Thomas	1,756 0 0	Dd. Jenkins	1,579 0 0
Gaen	1,753 6 0	Thos. Watkins & Co.	1 574 12 0
Baynon & Co.	1.747 14 6	D. C. Jones	1,575 0 0
Davies	1,735 0 0	Bennett Bros., Swansea (accepted)	1,458 10 0
M. C. Gaul	1,692 0 0		

ROMFORD.—For the erection of school buildings, for the School Board. Mr. Chas. Bell, architect, 3, Salter's Hau-court, Cannon-street, E.C. Quantities by Mr. J. Kennedy, 31, Gt. James-street W.C.:—

Brown	£9,392	Hammond & Sons, Romford, Essex*	£8 398
Kingerlee	8,927	Coxhead	8,387
Symes	8,750	Johnson	8 344
Perry & Co.	8,713	Gregar & Sons	8,330
Rous	8.700	Carter	8,100
Aney	8,580		

* Accepted.

RUSHDEN (Northants.).—For additions to the Conservative Club premises. Mr. H. H Packer, architect, Wellingborough:—

J. Rivett	£408 0 6	R. Marriott	£333 0 0
T. & C. Berrill	349 10 0	H. Sparrow	333 0 0
T. Sturgess	340 0 0	Hacksley Bros.	309 0 0
Geo. Henson	345 0 0		

ST. MARY CRAY.—For a new police-station to be erected at St. Mary Cray, for the Receiver for the Metropolitan Police District. Mr. John Butler, Architect. Quantities by Mr. W. H. Thurgood:—

Holloway Bros.	£3,997	Lathey Bros.	£3,383
C. Ansell	3 990	Higgs & Hill	3,784
Graham & Co.	3 960	J. Otway	3,680
Smith & Son	3,890	T. Knight	3,629

SELBY (Yorks.).—For the supply of cast-iron pipes, T-pieces, &c for the Urban District Council. Mr. W. Curry, Surveyor, Town Hall, Selby. Quantities by the Surveyor:—

Clay Cross Co.	£115 14 2	J. Ritchie	£93 10 3
E. & W. H. Haley	104 11 0	J. Blakeborough & Sons	88 9 2
The Stanton Iron Works Co.	103 0 8	Clay, Henriques, & Co.	85 5 7
Glenfield Co., Ltd.	95 16 0	The Birtley Iron Co., Birtley, Durham*	80 13 11
Monier, Williams, & Co.	94 11 0		

* Accepted.

SHENLEY (Herts.).—For alterations and additions to Kitwells Park, Shenley, Herts., for Mr. T. H. Riches. Messrs. Beeston & Burmester, architects:—

Hadcock	£5,647 8	C. Miskin	£5,336 0
Foster & Dicksee	5,571 0	Ball & Sons	4 990 0
Kinninmont & Sons	5,427 0		

SHERBURN (Durham).—For additions to church school buildings. Mr. W. T. Jones, architect, 1, Claypath, Durham:—

Haile Nicholson, Sherburn £398

SHROPHAM (Norfolk).—For additions to school buildings (classroom for infants), for the Trustees of the Shropham Church School. Mr. J. B. Peace, architect:—

Newson	£160 0	Hunt, Shropham*	£145 0
Mallett	158 10		

* Accepted.

SOUTHWOLD.—For alterations and additions to Bec-en-Hent for Mr. W. Cremmen:—

J. Thompson	£220	J. Allen	£170

STAFFORD.—For the extension of water-mains (2,600 yds.) from Milford to Brockton, for the Corporation. Mr. W. Blackshaw, Borough Surveyor, Borough Hall, Stafford:—

Blest	£509 3 4	E. Tempest, Eastgate-street, Stafford*	£458 19 0
Nevill	494 13 9		
Law	£400 0 0		

* Accepted.

STANDISH (Lancs.).—For the supply of 400 tons broken granite macadam, for Standish-with-Langtree Urban District Council:—

	Per ton. s. d.
Richard Briggs & Sons (Limestone)	5 4
Whitwick Granite Co. (Granite macadam)	11 0
Threlkeld Granite Co.	9 9
Brundrit & Co.	9 7
Kneeshaw, Lupton, & Co.	9 4
Glyn Granite Co.	9 3
Darbyshires, Limited, Penmaenmawr*	9 1
W. Chandley & Co.	9 0
Shap Granite Co.	9 0
Dee-Clwyd Granite Co.	8 10

* Accepted.

SUTTON (Surrey). — For the erection of school buildings, Belmont, for the School Board. Mr. R. W. Price, architect :—

H. Adams	£1,525	J. R. Humphris	£1,164
A. H Harris	1,460	G. Burrage*	1,037
J. B. Potter	1,398		

* Accepted.

[All of Sutton.]

SWANSEA.—For new warehouse and show-rooms, Waterloo-street, Swansea, for Mr. B. Freedman. Mr. T. P. Martin, architect, Swansea Quantities by the architect :—

Bennett Bros.	£850 0 0	Gustavus Bros.	£765 7 0
Lloyd	848 0 0	G. Davies	729 6 7
Billings	790 0 0	T. Richards, Swansea (accepted)	700 0 0
Dd. Jenkins	780 0 0		
Thomas & Watkins	770 0 0		

WESTON-SUPER-MARE. — For the erection of school buildings, Wallscote-road, for the School Board. Messrs. Price & Wooler, architects, Waterloo-street, Weston-super-Mare. Quantities by the architects :—

D. C. Jones & Co.	£11,989	C. Addicott	£10,466
Wm. Church	11,867	W. M. Dubin, Weston-super-Mare (accepted)	10,291
H. Hoskings	11,106	R. Wilkins & Sons	9,949
H. A. Forse	11,100	G. H. Wilkins	9,840
C. Taylor	10,608	S. Roberts (withdrawn)	9,753
A. J. Beavan	10,550		

WILMSLOW (Lancs.).—For supplying and laying 10,300 yards pipe sewers, &c., for the Urban District Council. Mr. John Bowden, C.E., 14, Ridgefield, Manchester :—

S. & E. Bentley	£7,250 0 0	George Bell	£6,190 0 0
Enoch Tempest	7,213 0 0	A. Braithwaite	5,662 0 0
George Boyson	6,929 0 0	J. A. Ewart, 11, Palmyra-square, Warrington*	5,279 0 0
George Taylor	6,793 1 6		
T. & W. Meadows	6,500 0 0		

* Accepted.

WIMBLEDON.—For the completion of eight houses, Clonmore-street, for Mr. J. R. Mayfield. Mr. William Hunt, architect :—

Clarke	£1,084	Bobby	£925
Storr	965	Godfrey & Budd	924
Palmer	950		

WOODFORD.—For shop, dwelling-house, &c., Woodford. Mr. L. W. Goodwyn, architect :—

J. Knight	£2,600	W. Shurmur	£2,349
Belham & Co.	2,451	W. Gregar & Son	2,347
F. J. Coxhead	2,422	Slow & Punter	1,875

WOODFORD.—For erecting a Baptist church, South Woodford. Mr. J. L. Wills, architect, Victoria Chambers, St. Peter's Church Yard, Derby :—

		Ceiling.	Red Bricks.	Gallery.	Total.
	£ s.	£ s. d.	£ s. d.	£ s.	£ s. d.
J. L. Willmot	2483 17	133 7 6	21 13 6	182 0	2820 18 0
Chas. Slow	2450 0	45 4 1	7 4 6	183 5	2685 13 7
J. Jolliffee	2364 0	86 10 0	30 0 0	160 0	2640 10 0
Coulsell Bros.	2273 0	50 0 0	23 0 0	147 0	2493 0 0
H. J. Carter	2265 10	66 0 0	10 0 0	126 0	2467 10 0
S. J. Scott*	2193 0	48 13 0	21 13 6	143 6	2406 12 6

* Accepted.

WORCESTER.—For the erection of stabling at the depôt, St. John's, Worcester, for the Worcester Tramways, Limited. Messrs. Pritchard & Co., engineers, London and Birmingham :—

Gowing & Ingram	£650 0 0	Harvey Grubham	£540 3 1
Jacob Biggs	604 18 11	William Payne, Birmingham*	525 0 0
George Trentham	589 0 0		

* Accepted.

TO CORRESPONDENTS.

S. S. P.—E. R.—A. S.—(Amounts should have been stated). J. P. E. (Below our limit).—A. A. S. (amounts should have been stated).

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office, 19s. per annum (or 4s. 9d. per quarter), can ensure receiving "The Builder, by *Friday Morning's Post*.

PUBLISHER'S NOTICES.

Registered Telegraphic Address, 'THE BUILDER,' LONDON.

THE INDEX, with TITLE-PAGE, for Volume LXVIII. (Jan. to June, 1895) was given as a supplement with the number for July 13.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 9d. each, also THE SIXTY-EIGHTH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence.

SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 3s. 6d. each.

CHARGES FOR ADVERTISEMENTS.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE AND GENERAL ADVERTISEMENTS.

Six lines (about fifty words) or under ..... 4s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

Terms for series of Trade advertisements, also for Special Advertisements on front page, Competitions, Contracts, Sales by Auction, &c., may be obtained on application to the Publisher.

SITUATIONS WANTED.

FOUR Lines (about thirty words) or under ..... 2s. 6d.
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PREPAYMENT IS ABSOLUTELY NECESSARY.

**** Stamps *must not* be sent, but all small sums should be remitted by Cash in Registered Letter or by Postal Orders, payable to DOUGLAS FOURDRINIER, and addressed to the Publisher of "THE BUILDER," No. 46, Catherine-street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the front Page should be in by TWELVE noon on WEDNESDAY.

SPECIAL.—ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before 10 a.m. on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS Advertising in "The Builder," may have *Replies addressed to the Office*, 46, Catherine-street, Covent Garden, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES, { NINEPENCE EACH. By Post (carefully packed), 1s.

TERMS OF SUBSCRIPTION.

"THE BUILDER" is supplied DIRECT from the Office to any part of the United Kingdom, at the rate of 19s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances (payable to DOUGLAS FOURDRINIER) should be addressed to the publisher of "THE BUILDER," No. 46, Catherine-street W.C.

THE BATH STONE FIRMS, Ltd.
BATH,
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE.
The attention of Architects is specially invited to the durability and beautiful colour of this material. Quarries well opened. Quick despatch guaranteed. Stonework delivered and fixed complete. Samples and estimates free. Address, The Ham Hill Stone Co., Norton, Stoke-under-Ham, Somerset. London Agent: Mr. E. A. Williams, 16, Craven-st., Strand, W.C. [ADVT.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest material for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.

SPRAGUE & CO.
LITHOGRAPHERS AND PRINTERS.
Estate Plans and Particulars of Sale promptly executed.
4 & 5, East Harding-st., Fetter-lane, E.C. [ADVT.

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.
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"QUANTITY SURVEYORS' TABLES."
For 1895 price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.

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SLATE MERCHANT,
SLATER and TILER.
ESTIMATES GIVEN FOR
SLATING AND TILING,
To be Executed by Contract in any part of ENGLAND.
Penrhyn - Bangor,
Oakeley - Palmerston,
And other description of Slates ready for immediate delivery to any Railway Station.
Applications for Prices, &c., to
BETHNAL GREEN SLATE WORKS,
BETHNAL GREEN, LONDON, E.

THE
French Asphalte
COMPANY,
Suffolk House, Cannon-street, E.C.
SUPPLY THE BEST MATERIAL AND WORKMANSHIP FOR BUILDINGS, DAMP COURSES, AREAS, ROOFS, WASH-HOUSE AND DAIRY FLOORS, &c., &c.
This Asphalte was chosen to be laid at Sandringham, on the new General Post Office, and other important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.
ZINC AND COPPER ROOFING.
F. BRABY & CO.
LONDON. ◆◆ LIVERPOOL. ◆◆ GLASGOW.
352 to 364, Euston-road, N.W. 6 and 8, Hatton Garden. 47 and 49, St. Enoch-square.
VIEILLE MONTAGNE SOLE MANUFACTURING AGENTS.
NO SOLDER. NO EXTERNAL FASTENINGS.
Particulars on Application. Chief Offices: Fitzroy Works, EUSTON ROAD, LONDON, N.W.

1895.

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Australia, New
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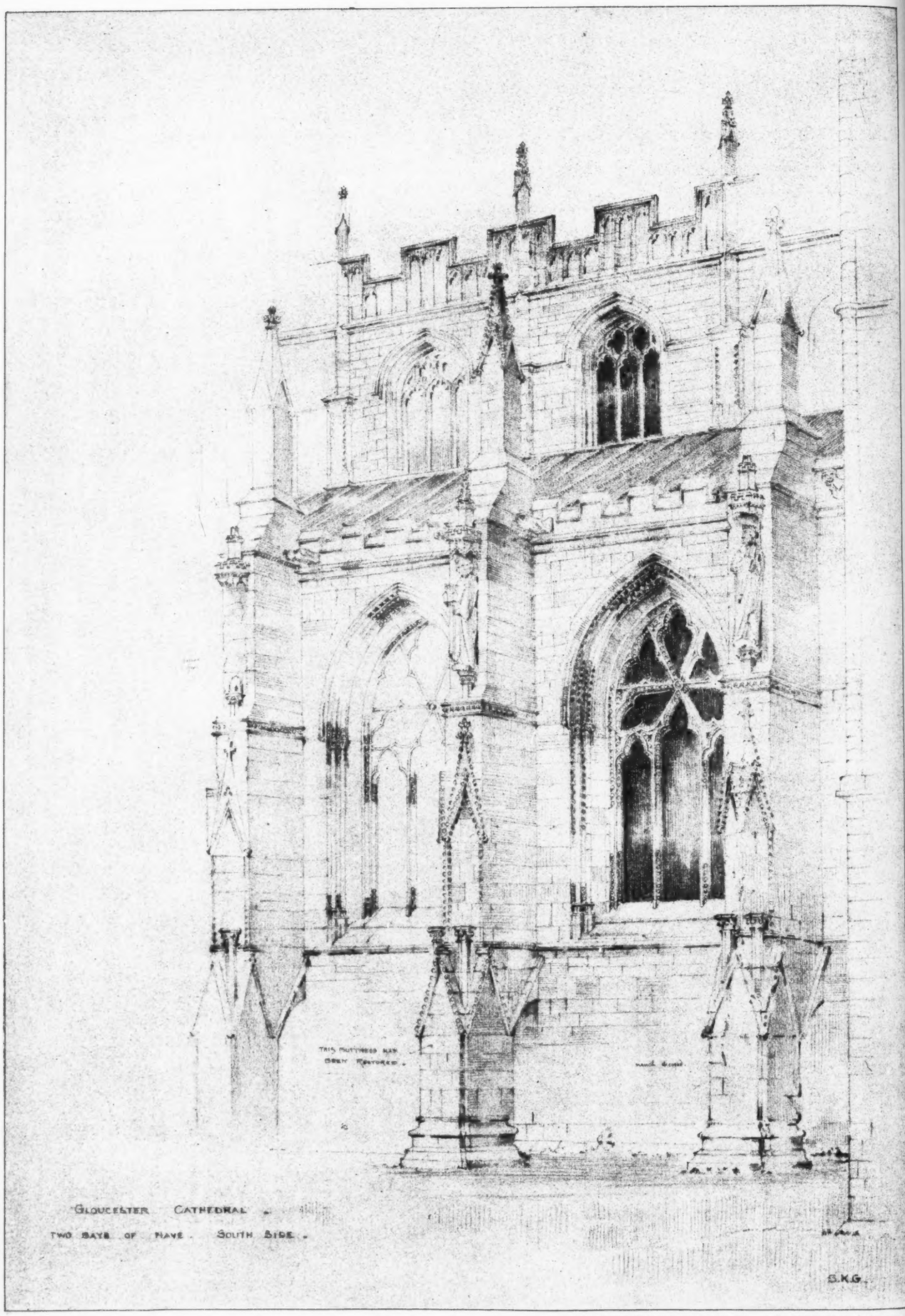


INK-PHOTO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

ARCHITECTURAL ASSOCIATION EXCURSION, 1895.

SKETCHES ON THE LINE OF ROUTE.

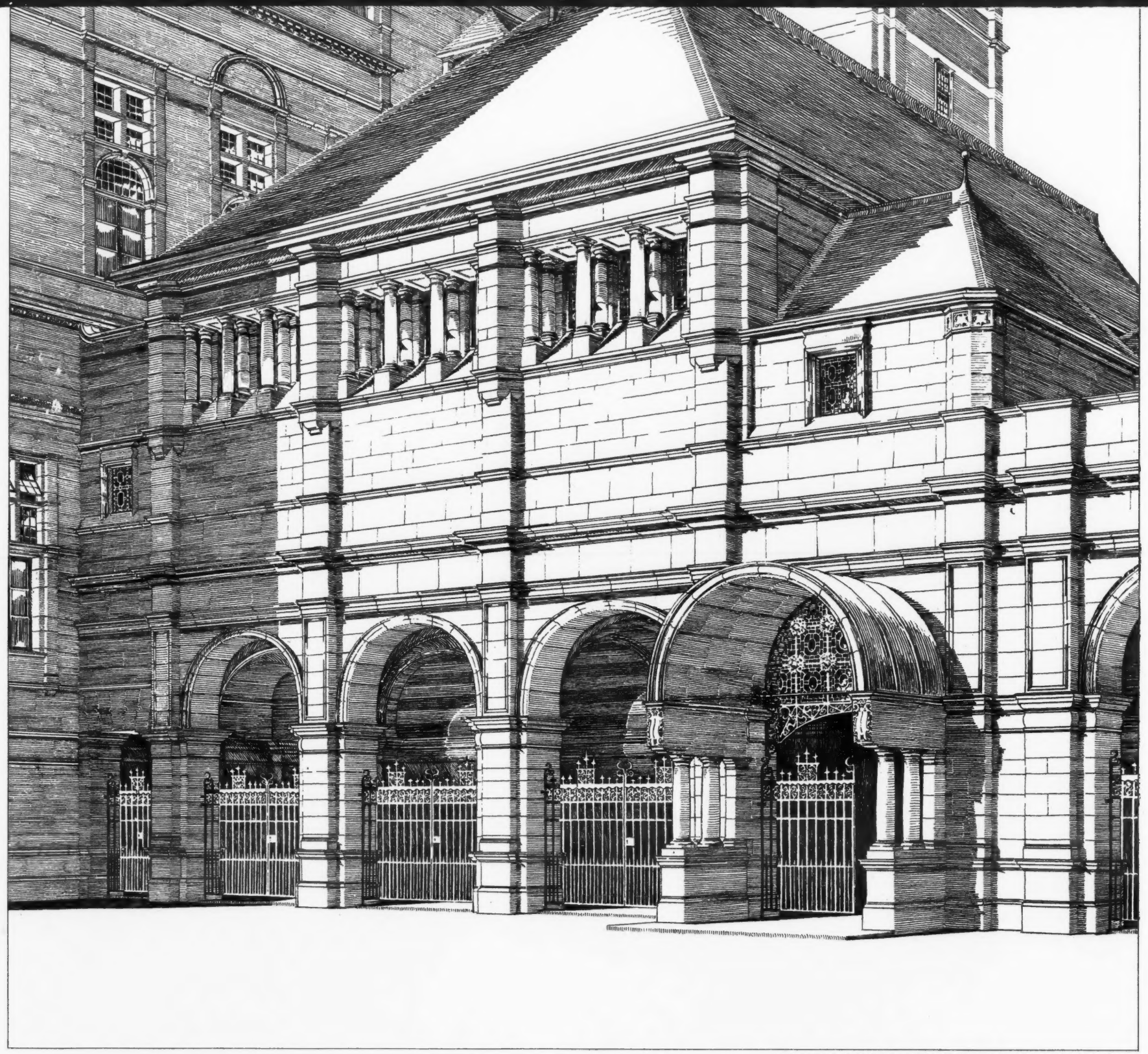
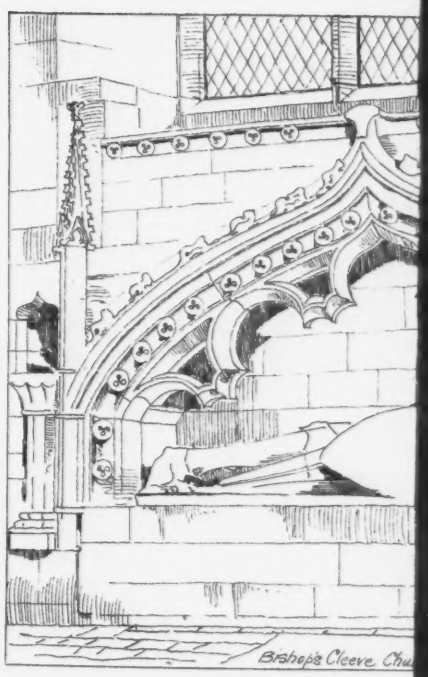


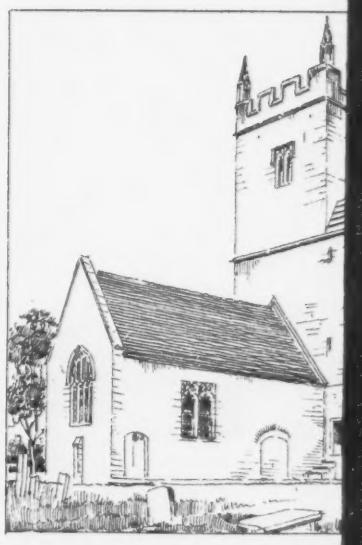
PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE E.C.

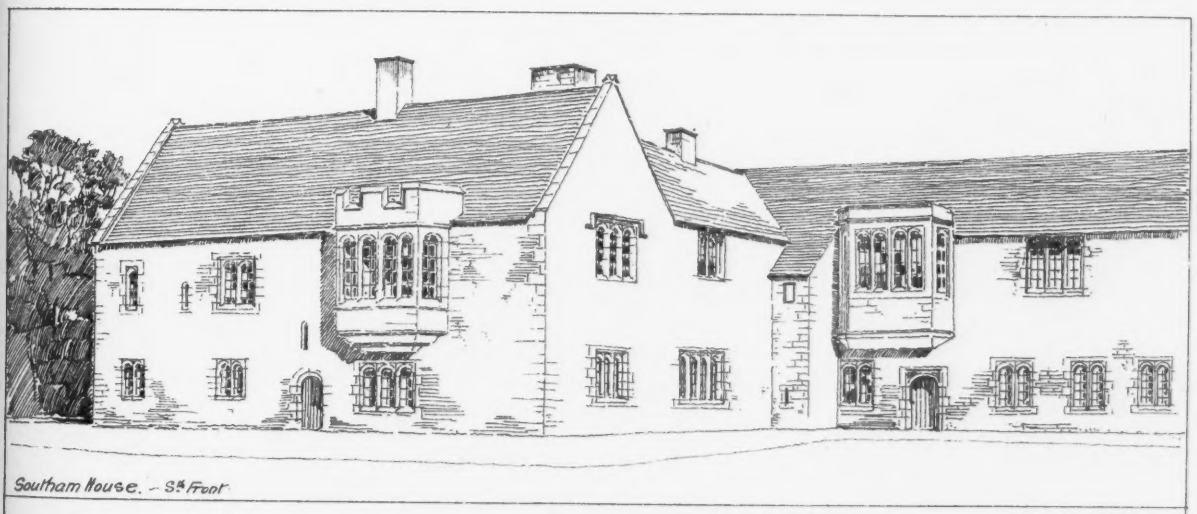
THE LECTURE HALL, IMPERIAL INSTITUTE.—Mr. Thomas E. Collcutt, F.R.I.B.A., Architect.

Bishop's Cleeve Church.

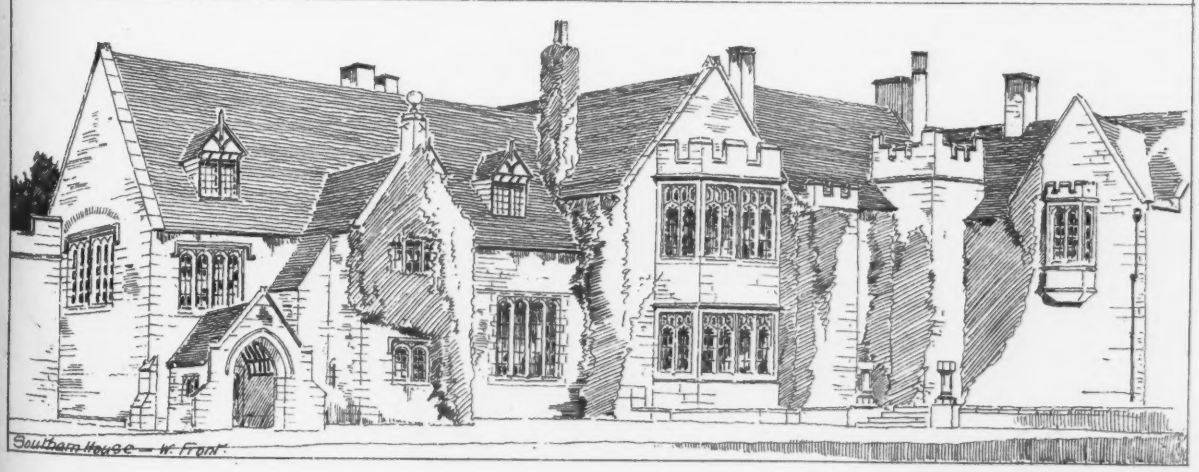


Bishop's Cleeve Chu





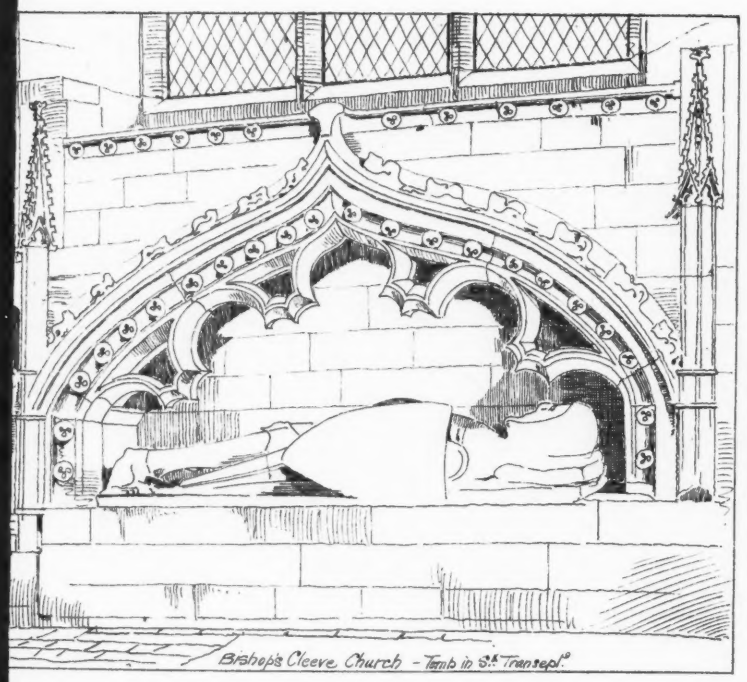
Southam House. – S.E. Front

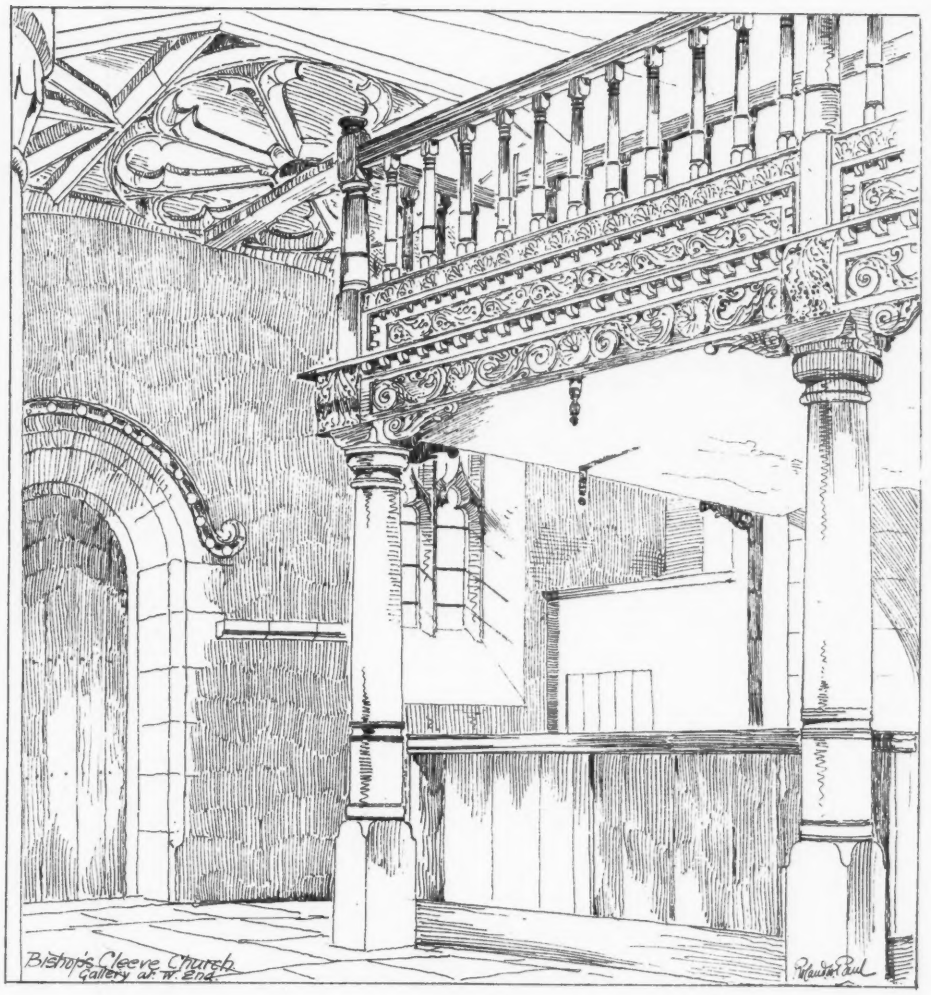


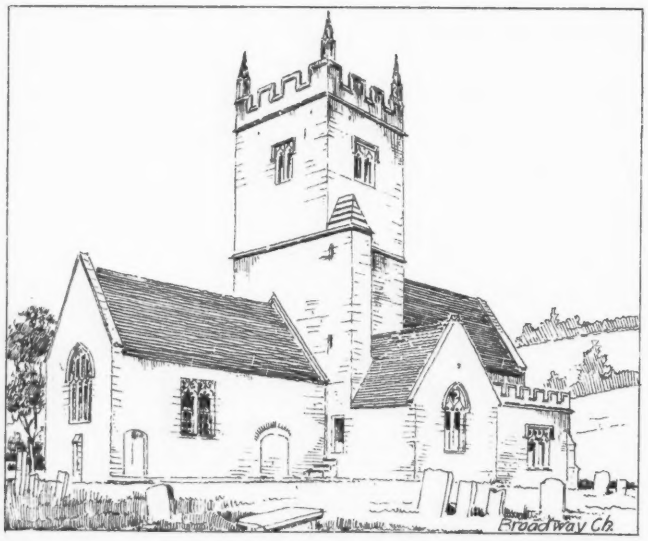
Southam House – W. Front

ARCHITECTURAL ASSOCIATION EXC

SKETCHES ON THE LINE OF







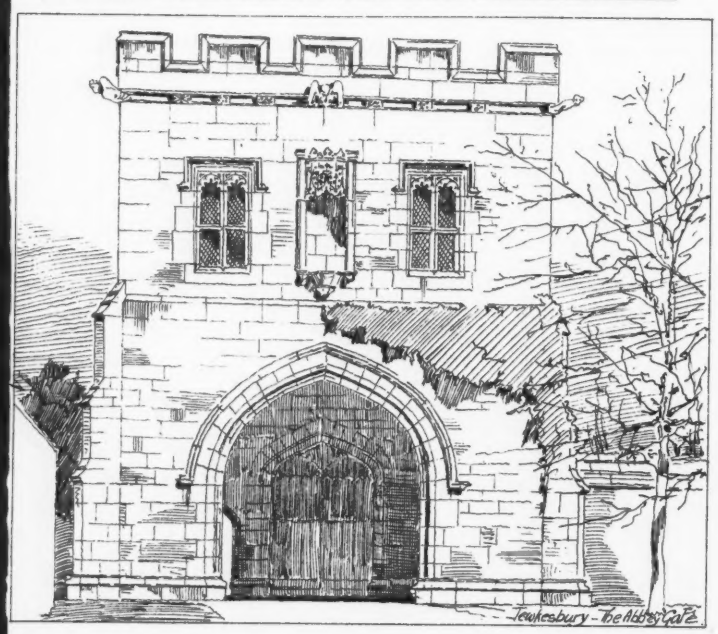
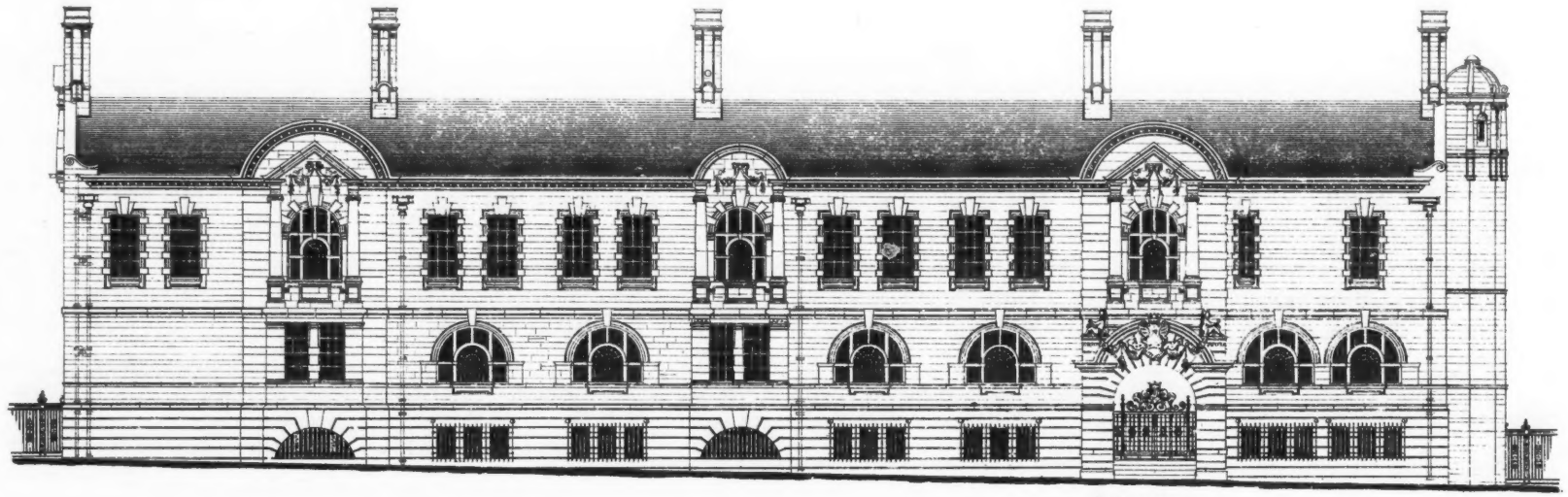
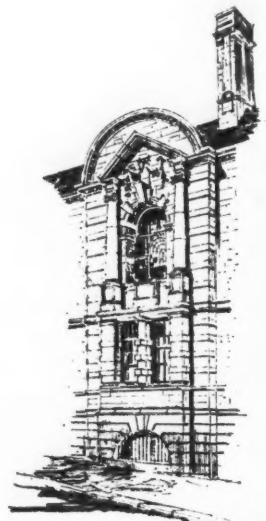


PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE E.C.

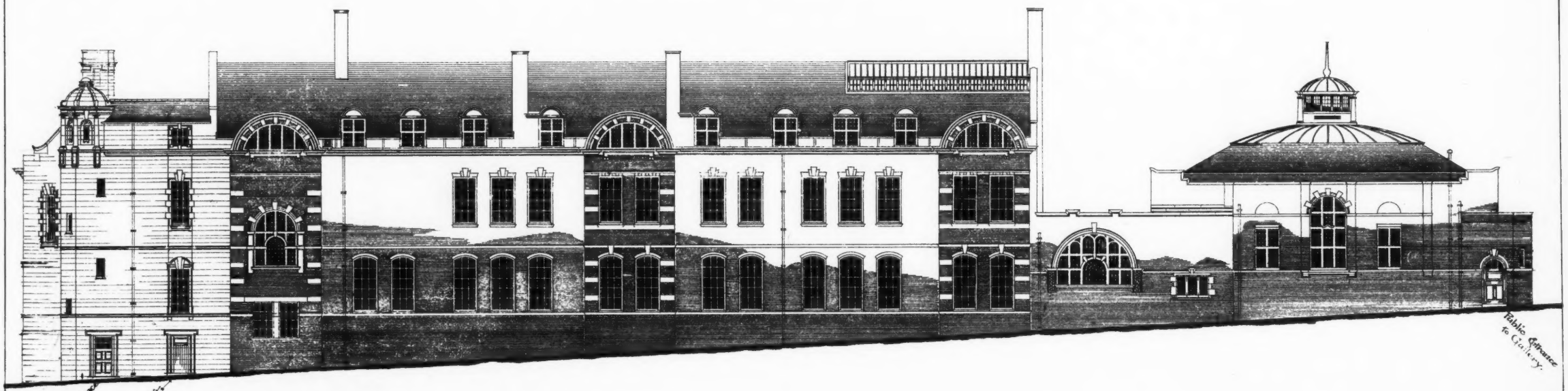
TECTURAL ASSOCIATION EXCURSION, 1895.

KETCHES ON THE LINE OF ROUTE.





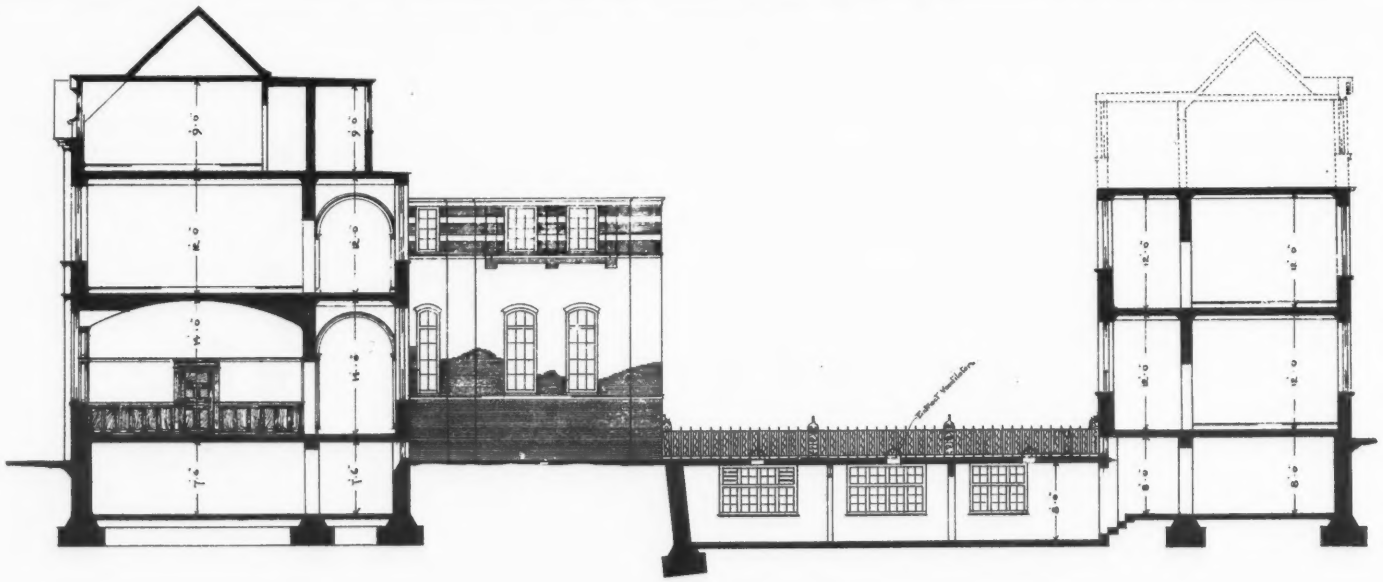
Elevation in Old Elvet.



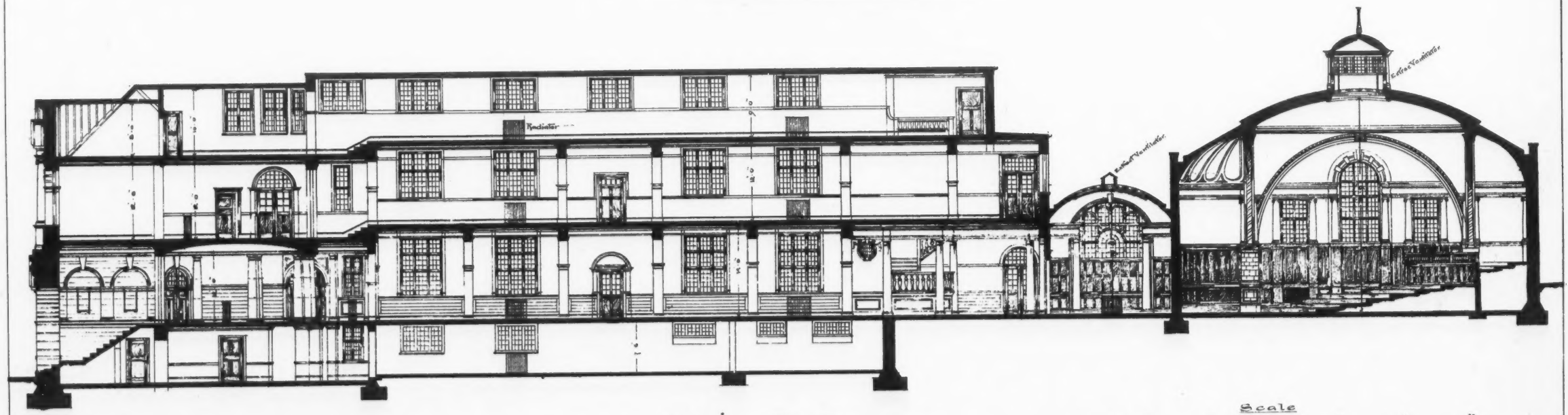
West Elevation.

PHOTO-LITHO. SPRAGUE & Co. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

FIRST PREMIATED DESIGN FOR DURHAM COUNTY COUNCIL BUILDINGS.—MESSRS. COOKSEY & CON, ARCHITECTS.



Section G-H.

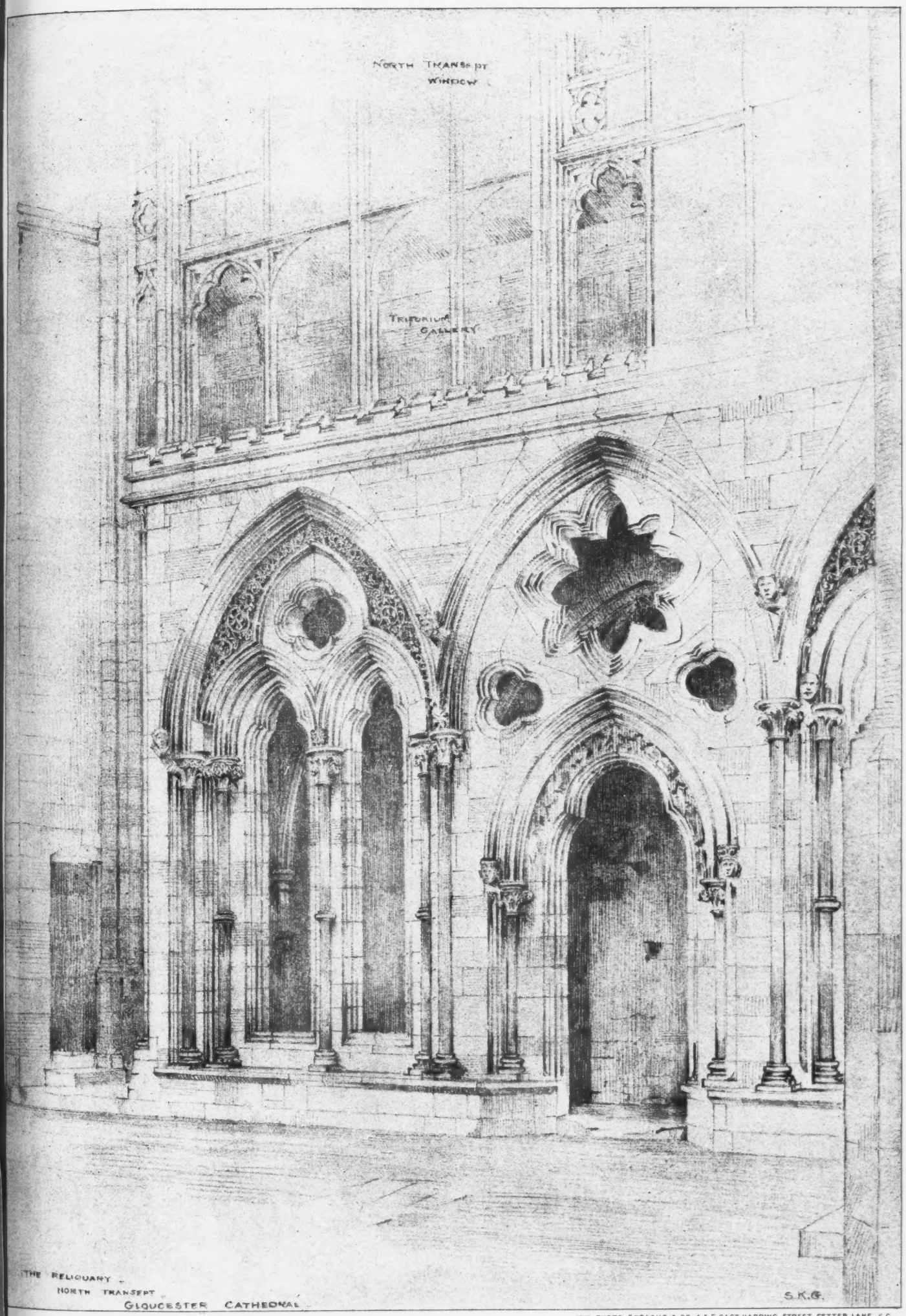


Section E-F.

Scale

PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE E.C.

FIRST PREMIATED DESIGN FOR DURHAM COUNTY COUNCIL BUILDINGS.—Messrs. Cooksey & Cox, Architects.



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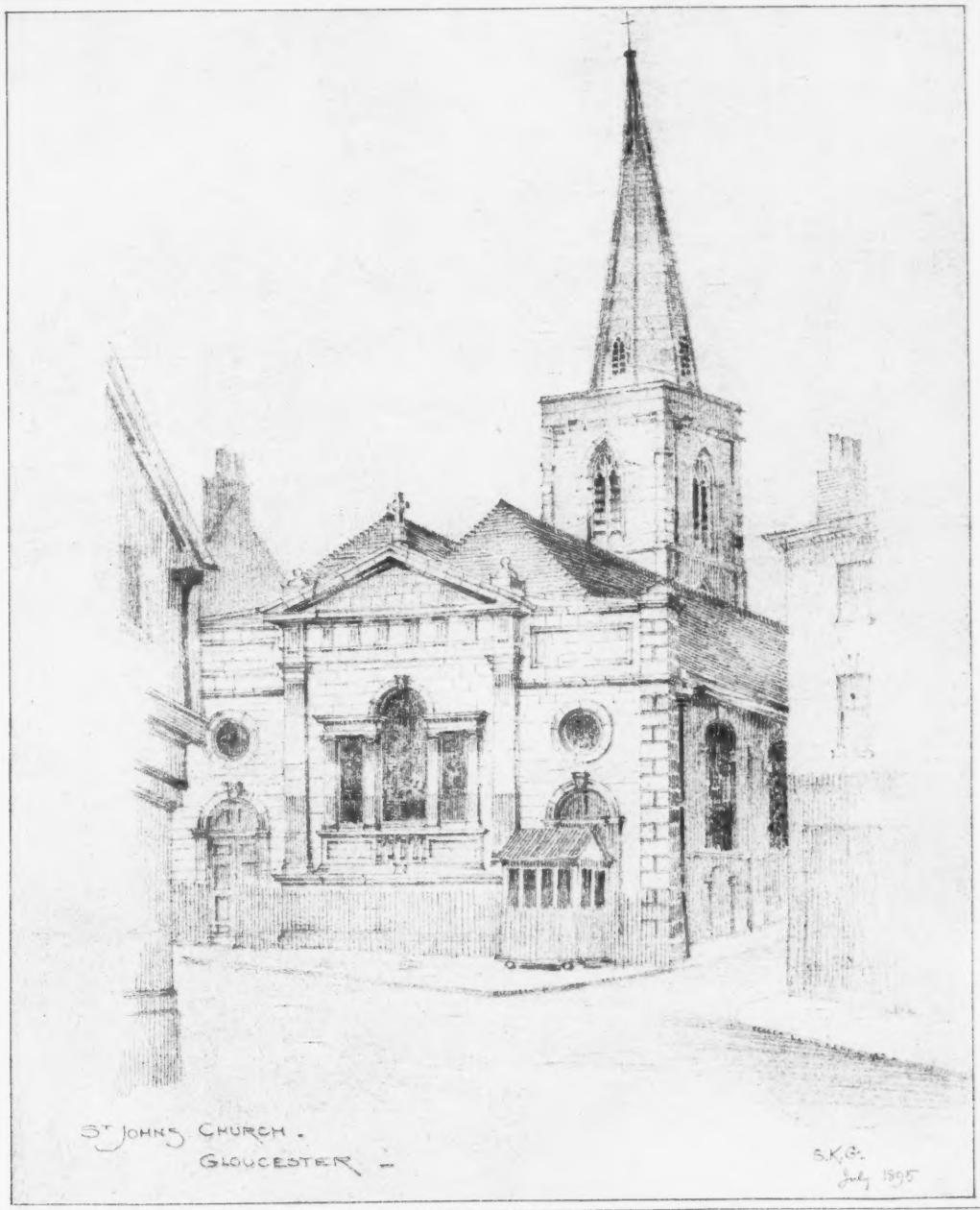
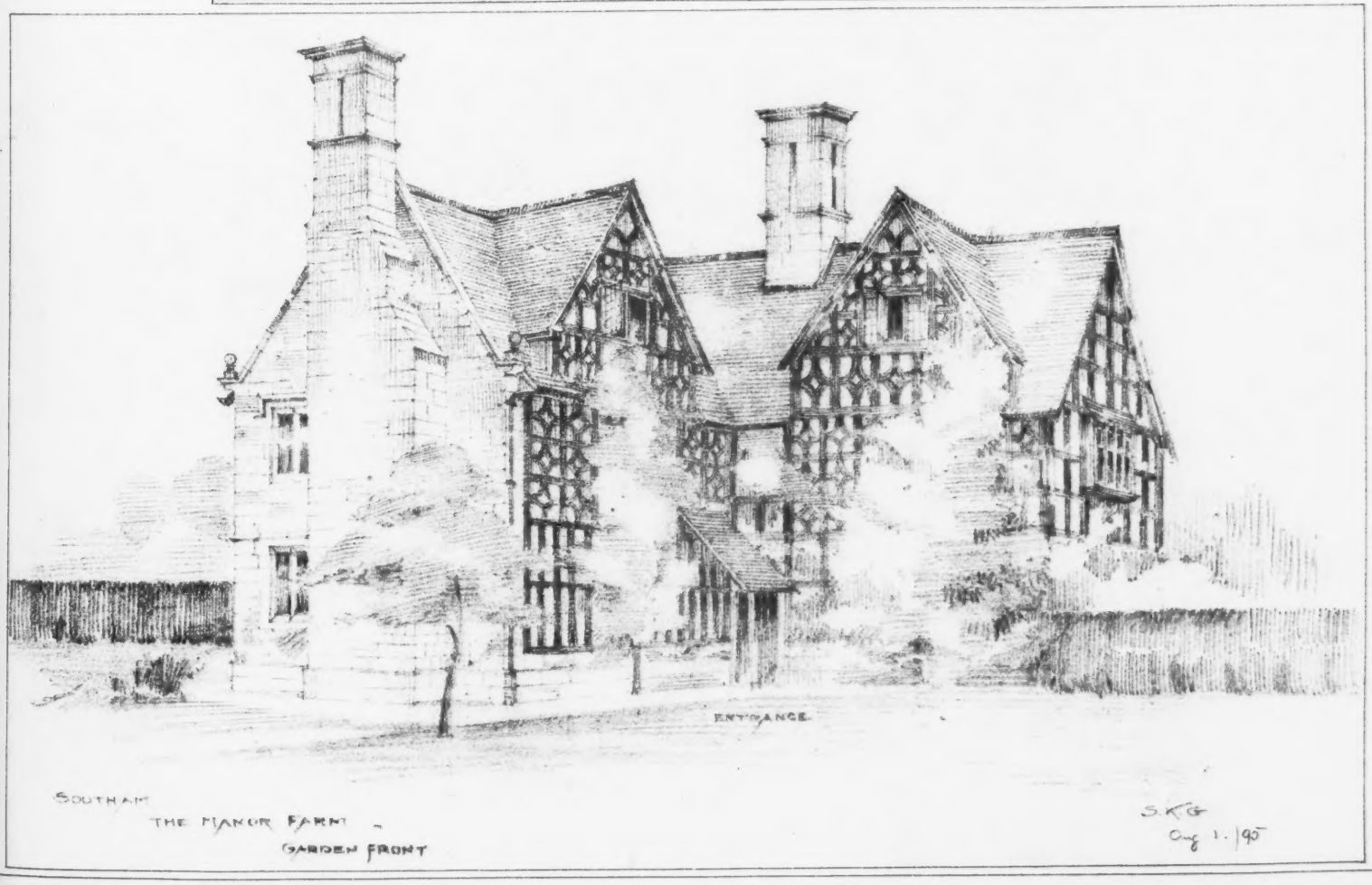
ARCHITECTURAL ASSOCIATION EXCURSION, 1895.

SKETCHES ON THE LINE OF ROUTE.



St Johns Church.
Gloucester. –

S.K.G.
July 1895



Southam
The Manor Farm –
Garden Front

S.K.G
Aug 1. 95

ARCHITECTURAL ASSOCIATION EXCUR
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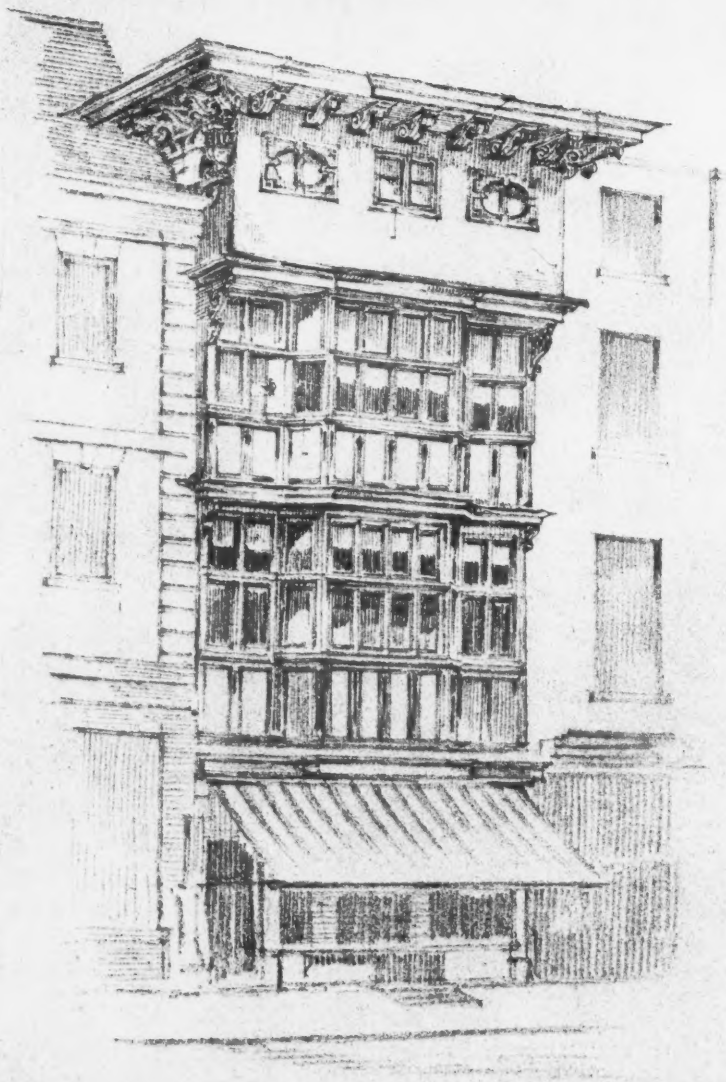
INK-PHOTO, SPRAGUE & Co. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

TURAL ASSOCIATION EXCURSION, 1895.

TCHES ON THE LINE OF ROUTE.

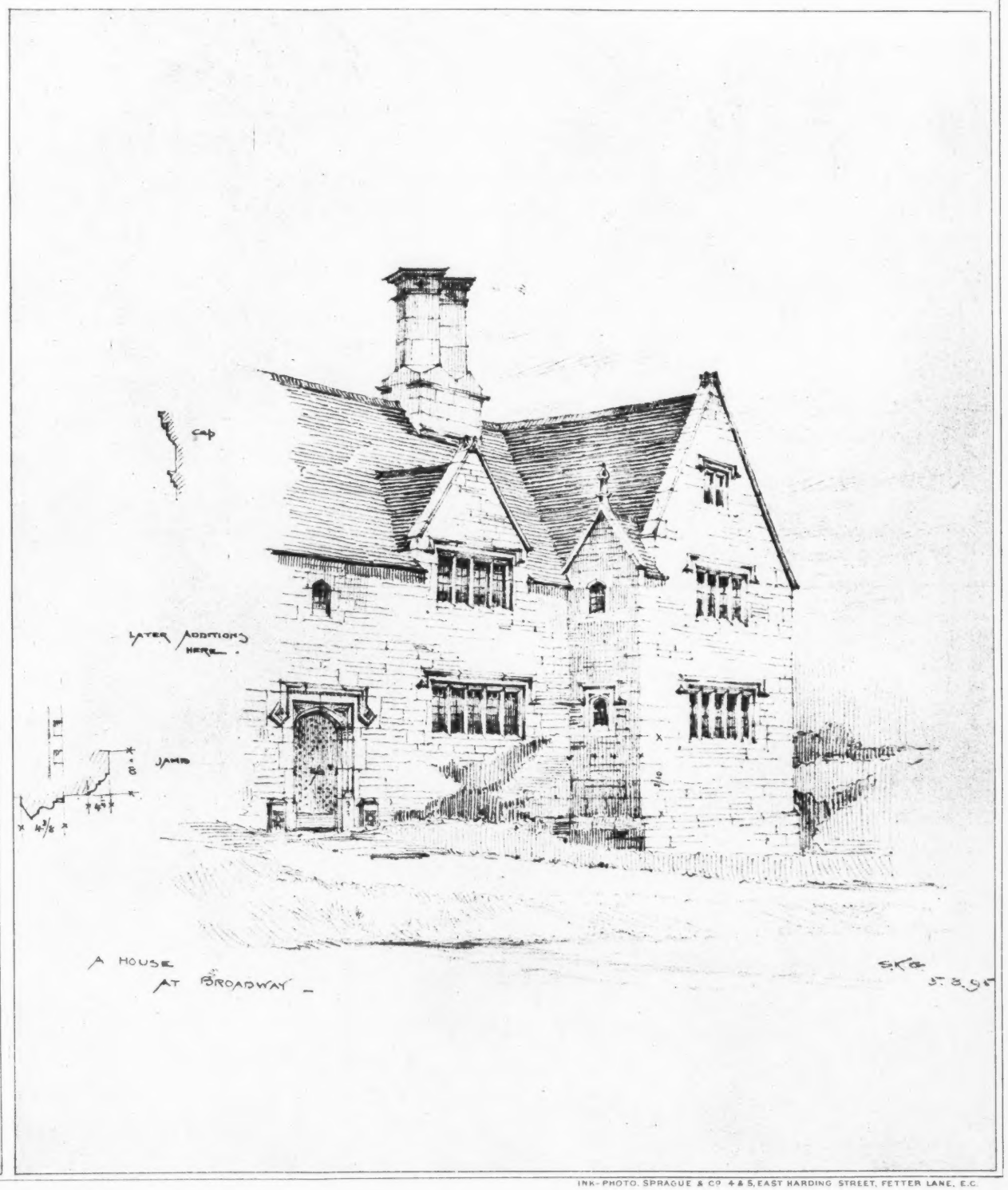


A HOUSE
AT TEWKESBURY

O.K.G.
30 / 95

CHURCH AND MANOR HOUSE
BUCKLAND.

O.K.G.
4-8 95



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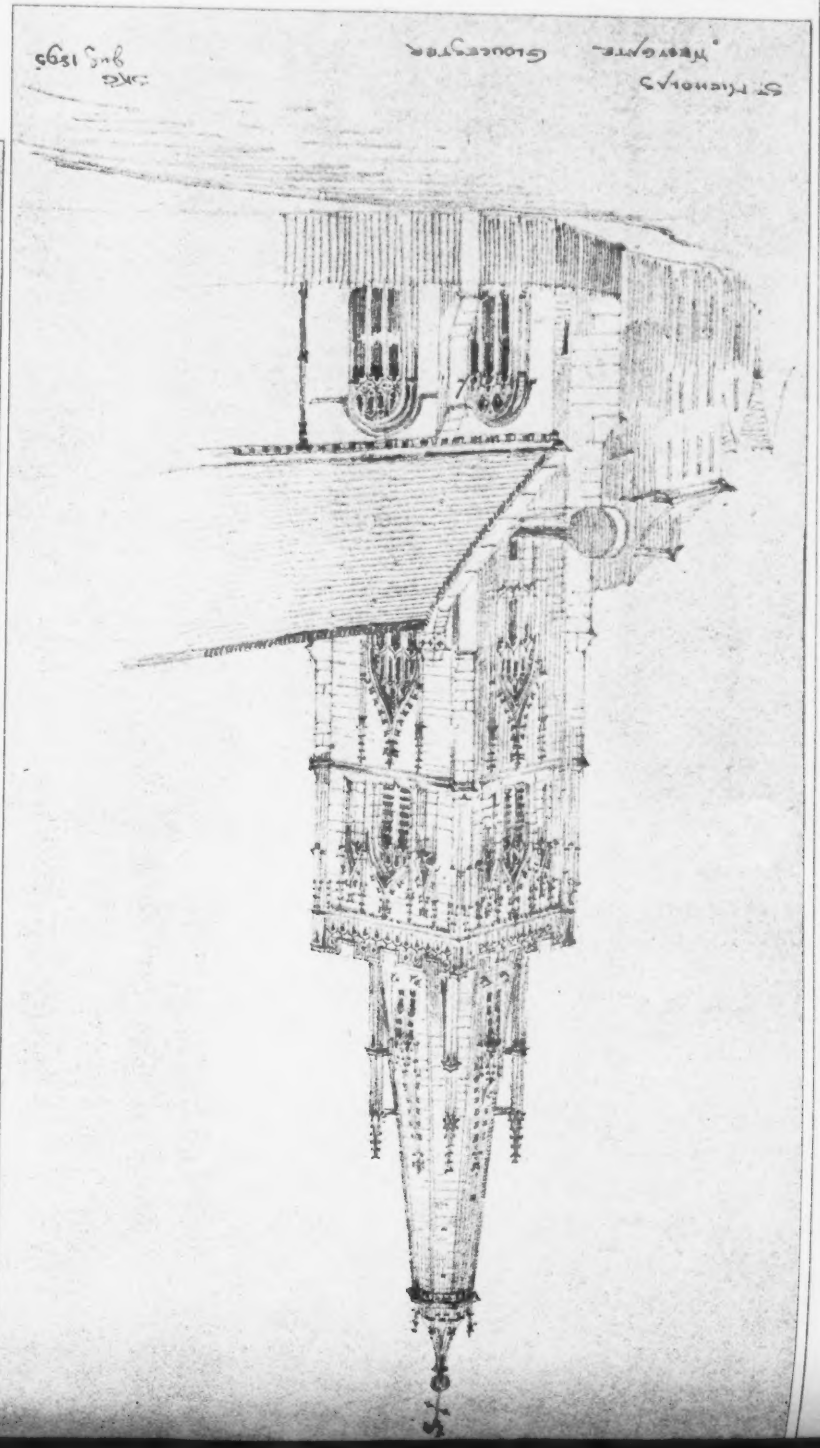
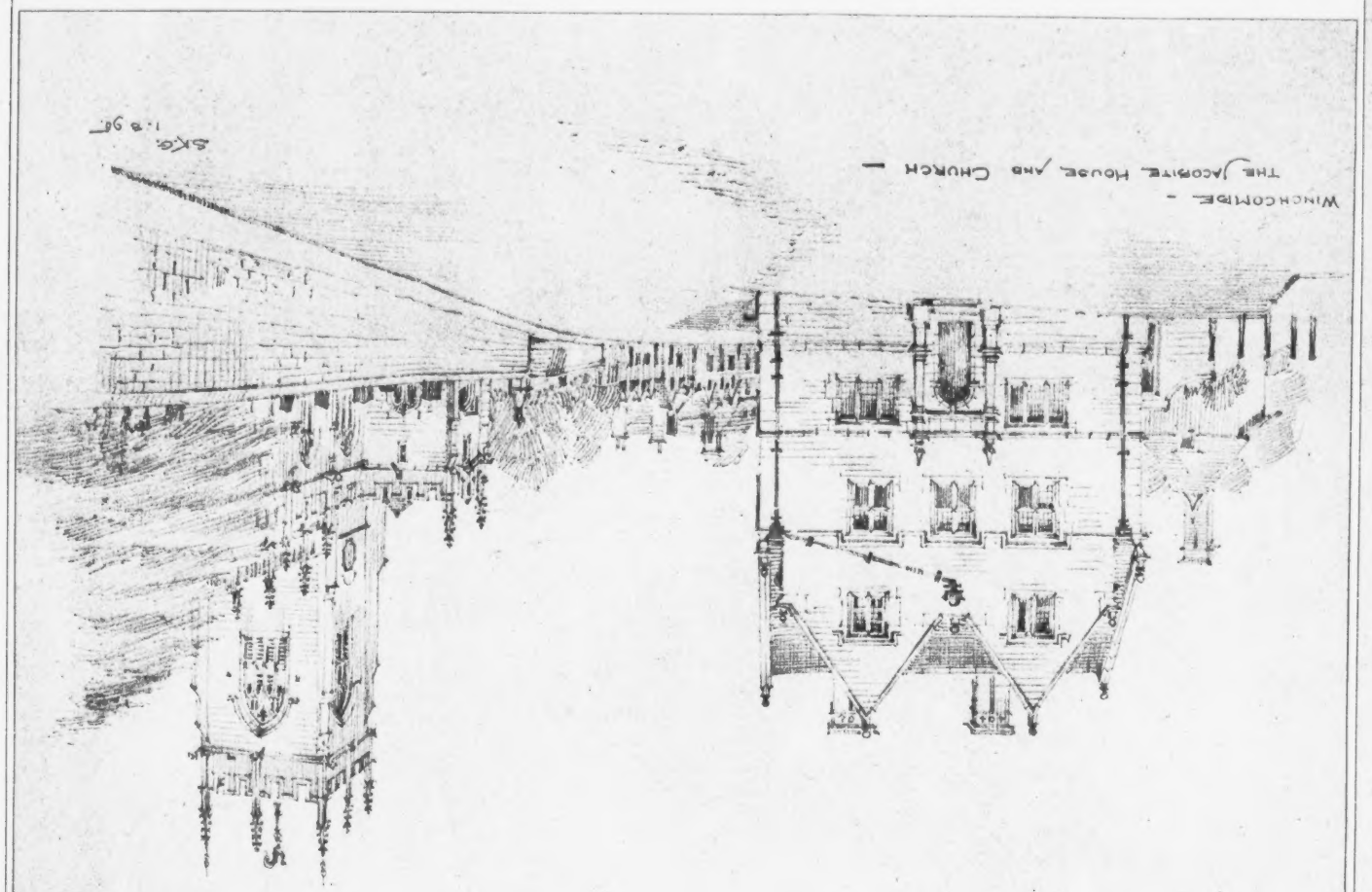
ARCHITECTURAL ASSOCIATION EXCURSION, 1895.

SKETCHES ON THE LINE OF ROUTE.



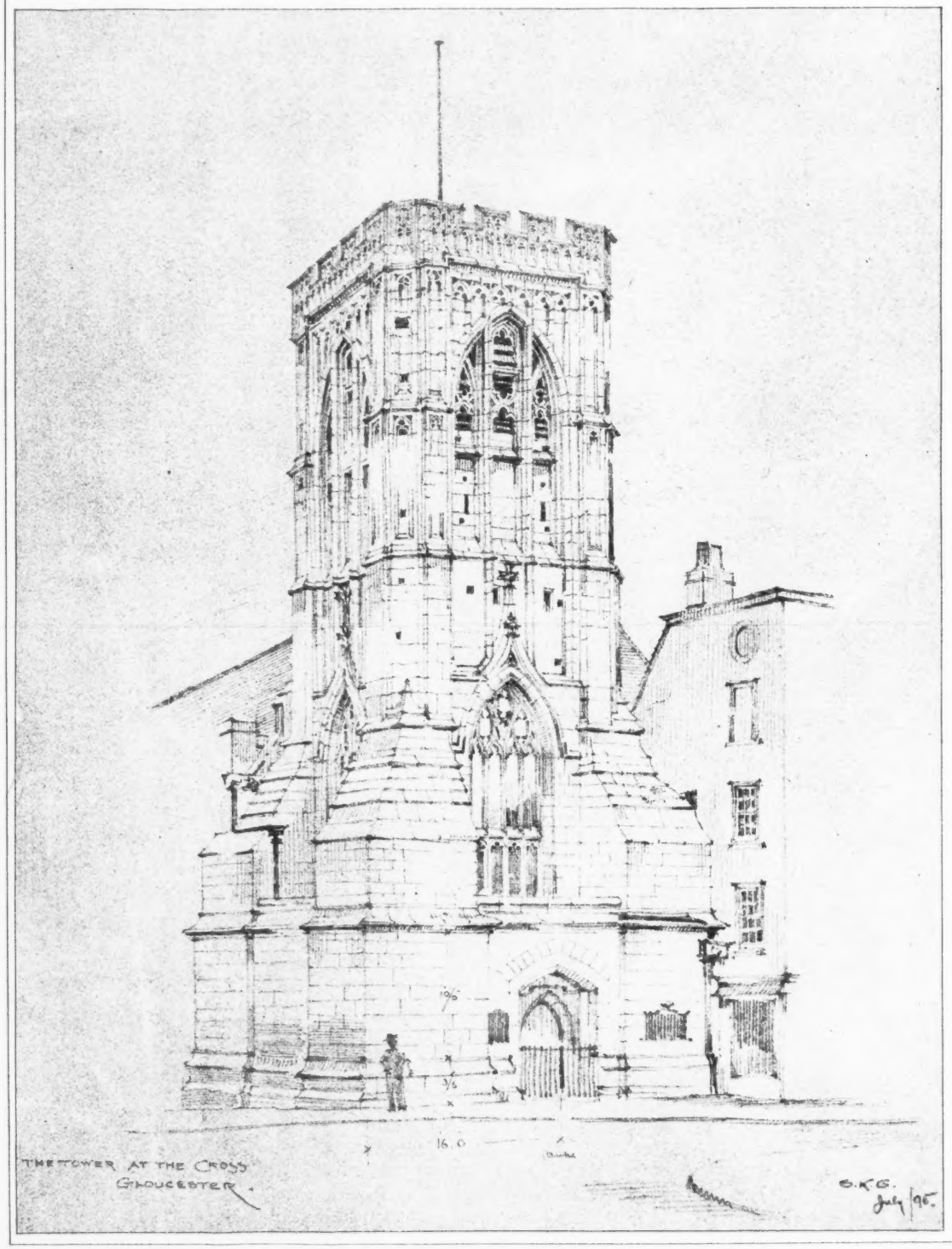
St Nicholas
Gloucester.
Decd 1895



Winchcombe -
The Jacobite House and Church -
Scale 1.8 0f

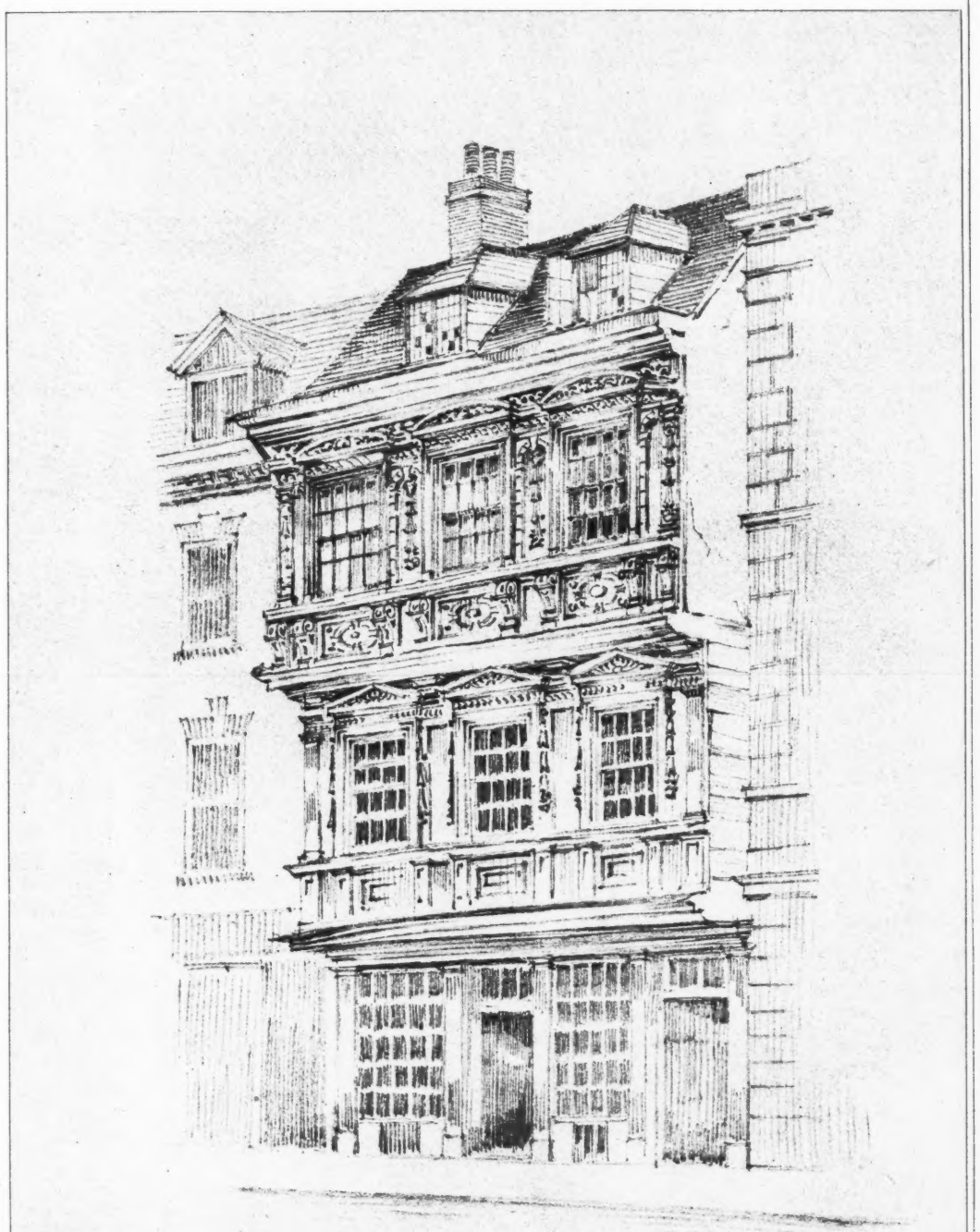
St. Nicholas
Westgate Gloucester

O.K.G. Aug 1895



THE TOWER AT THE CROSS
GLOUCESTER.

O.K.G. July/95.



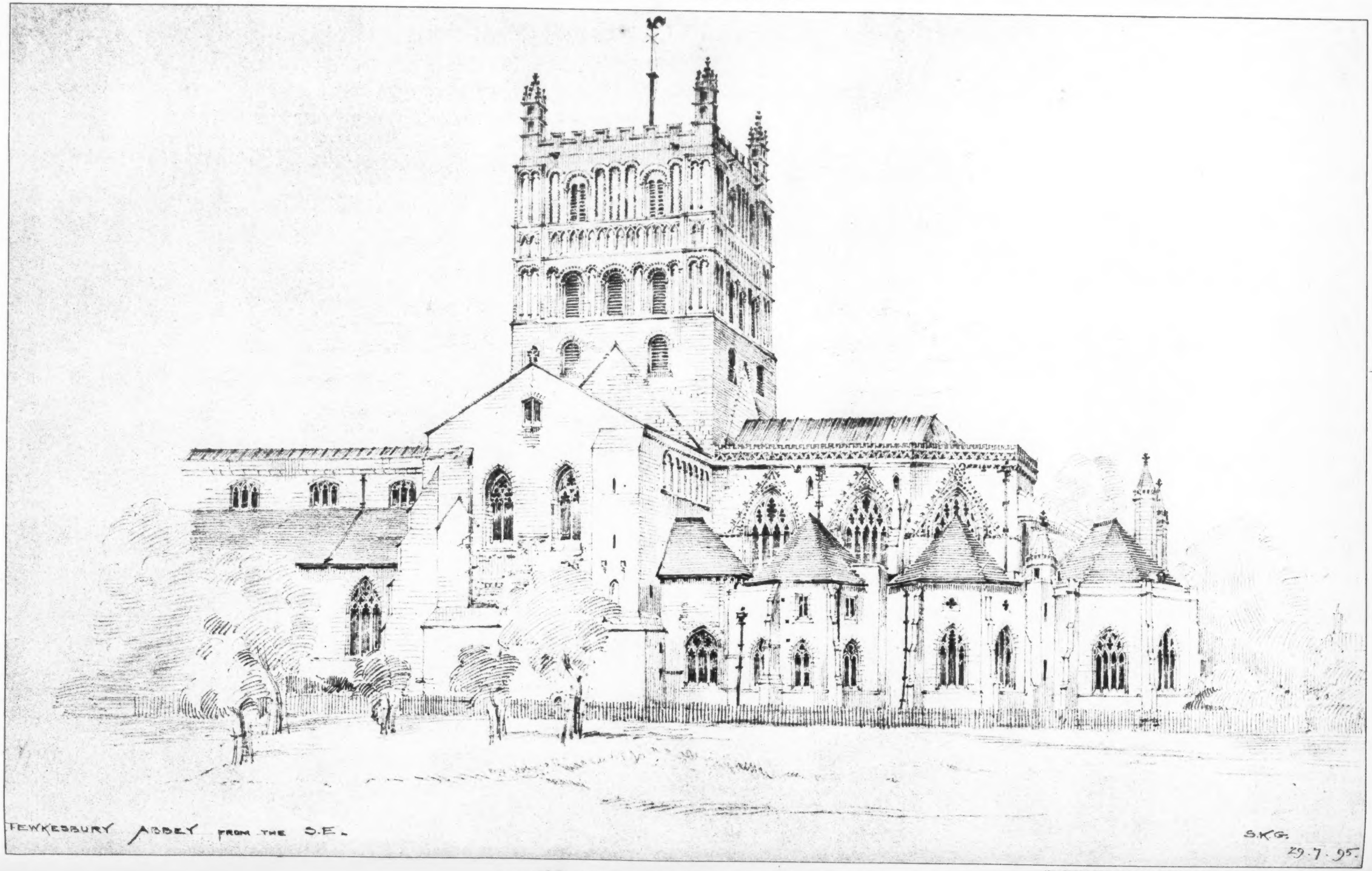
A HOUSE
AT GLOUCESTER

O.K.G.
July 1895

INK-PHOTO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

ARCHITECTURAL ASSOCIATION EXCURSION, 1895.

SKETCHES ON THE LINE OF ROUTE.



TEWKESBURY ABBEY FROM THE S.E.

S.K.G.
29.7.95.

ARCHITECTURAL ASSOCIATION EXCURSION, 1895.

INK-PHOTO. SPRAGUE & CO. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

THE BUILDER, AUGUST 24, 1895.

CHASTLETON

ENTRANCE FRONT FROM CHURCHYARD.

S.K.G.
6.8.95

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ARCHITECTURAL ASSOCIATION EXCURSION, 1895.
SKETCHES ON THE LINE OF ROUTE.